Atlantic Richfield Company

Anthony R. Brown
Project Manager Mining

4 Centerpointe Drive
La Palma, CA 90623-1066
Office: (714) 228-6770
Fax: (714) 228-6749
E-mail: Anthony.Brown@bp.com

June 12, 2013

Mr. Steven Way
On-Scene Coordinator
Emergency Response Program (8EPR-SA)
U.S. EPA, Region 8
1595 Wynkoop Street
Denver, CO 80202-1129

RE: St. Louis Tunnel Discharge Constructed Wetland Pilot Scale Test Construction and Pre-Implementation Report
Rico-Argentine Mine Site – Rico Tunnels, Operable Unit OU01
Dolores County, Colorado

Dear Mr. Way:

On behalf of Atlantic Richfield Company (Atlantic Richfield), please find enclosed the *St. Louis Tunnel Discharge Constructed Wetland Pilot Scale Test Construction and Pre-Implementation Report* (Construction Report) prepared for the Rico-Argentine Mine Site (site). This Report documents construction of the pilot scale passive treatment system described in the *St. Louis Tunnel Discharge Constructed Wetland Pilot Scale Test Work Plan* dated August 29, 2012. This work was completed pursuant to requirements in Task F – Water Treatment System Analysis and Design / Subtask F2 – Treatment System Conceptual Designs and Additional Investigations of the Remedial Action Work Plan accompanying the Unilateral Administrative Order for Removal Action, Rico-Argentine Site, Dolores County, United States Environmental Protection Agency, Region 8, (U.S. EPA), dated March 9, 2011 (Docket No. 08-2011-0005).

If you have any questions regarding this Report or the work completed, please feel free to contact me at (714) 228-6770 or via e-mail at Anthony.Brown@bp.com.

Sincerely,

Tony Brown
Project Manager Mining
Atlantic Richfield Company

Enclosures: *St. Louis Tunnel Discharge Constructed Wetland Pilot Scale Test Construction and Pre-Implementation Report*

cc: Terry Moore, Atlantic Richfield Company (via e-mail)
Sheila D'Cruz, Atlantic Richfield Company (via e-mail)
Reginald Ilao, Atlantic Richfield Company (via e-mail and hardcopy)
Adam Cohen, Esq., Davis Graham & Stubbs, LLP (via e-mail)
Tom Kreutz, AECOM Technical Services, Inc. (via e-mail)

Doug Yadon, AECOM Technical Services, Inc. (via e-mail)
Sandy Riese, EnSci, Inc. (via e-mail)
Chris Sanchez, Anderson Engineering Company, Inc. (via e-mail)
Dave McCarthy, Copper Environmental Consulting, LLC (via e-mail)
Marc Lombardi, AMEC Environment & Infrastructure, Inc. (via e-mail)
Kristine Burgess, AEEC, LLC (via e-mail)
Jan Christner, URS Operating Services, Inc. (via e-mail)

ST. LOUIS TUNNEL DISCHARGE CONSTRUCTED WETLAND PILOT SCALE TEST CONSTRUCTION AND PRE-IMPLEMENTATION REPORT

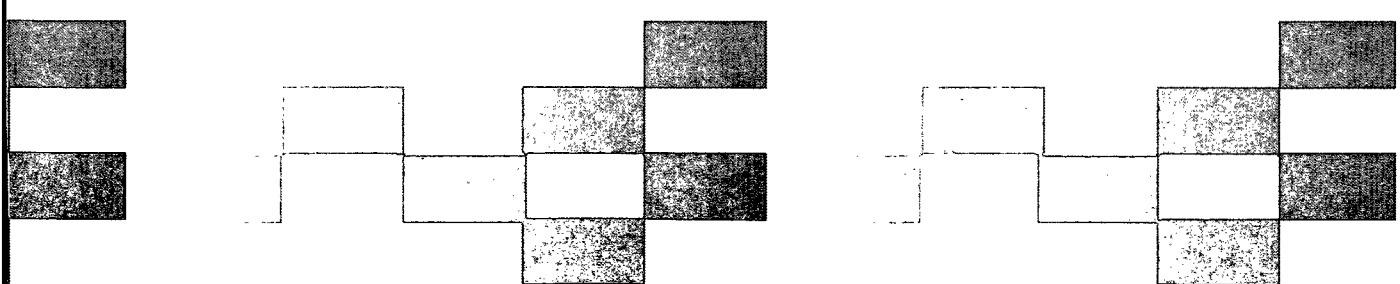
Rico Argentine Mine Site – Rico Tunnels
Operable Unit OU01
Dolores County, Colorado

Prepared for:
Atlantic Richfield Company
La Palma, California

Prepared by:
AMEC Environment & Infrastructure, Inc.
Rancho Cordova, California

June 2013

Project SA11161314



APPENDIX D

Colorado State Electrical Board Permit Number 731334

OK

COLORADO STATE ELECTRICAL BOARD

ELECTRICAL PERMIT NUMBER: 731334

Date Paid: 05-NOV-12 Expires On: 05-NOV-13

For inspections, click the 'Request Inspection' link on the permit list screen

GARY ALPHONSE THIAVILLE
STURGEON ELEC CO INC
12150 E 112TH AVE
HENDERSON, CO 80640

Registration Number: 3

Trim Permit: N

Daytime Phone: (303) 286-8000

FAX:
( ) -

Power Supplier: SAN MIGUEL POWER

Owner Name: RICO ARGENTINE MINE SITE

RICO ARGENTINE MINE SITE

Address: 1 SOUTH GLASGOW
City: RICO, CO. 81332

COMMERCIAL NEW

Driving Directions: Call Rod Engel 720-215-7085

Brief Description: Set 3 poles for power to new service for heat trace

Inspector: Gary Freeman 855-451-9794

Cost of work: $52,000.00 Fee Amount: $620.00

Paid

COLORADO STATE ELECTRICAL BOARD
DEPARTMENT OF REGULATORY AGENCIES
1560 Broadway. Suite 1500
Denver, Colorado 80202
Phone: (303) 894-2985

Colorado The Official State Web Portal

Dora Department of Regulatory Agencies

Division of Professions and Occupations

Electrical and Plumbing Permits Online

State of Colorado

Electrical and Plumbing permit search results.

Permit Number: 731334

Address: 1 South Glasgow		Job Description: Private Property
City: Rico	County: Dolores	
Permit Type: ELECTRICAL	Issue Date: 05-NOV-12	Permit Status: CLOSED
Building Type: COMMERCIAL	Construction Type: NEW	Misc: COMMERCIAL NEW
Last Inspection Performed:	E_FINAL_COMP - ACCEPTED	
Trim: N		

Back to Search Print Cancel

* Questions? Check out the Definitions Page or Frequently Asked Questions (FAQ).

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Technical Assistance:
E-mail Information Technology Section

E-Mail the Division of Professions and Occupations
1560 Broadway, Suite 1500
Denver, CO 80202
(303) 894-2300 - Phone
(303) 894-2310 - Fax
Relay Colorado
(TTY (English & Spanish), Voice, VCO, ASCII, STS Assistance Numbers)

Consumer Protection

COLORADO STATE ELECTRICAL BOARD

ELECTRICAL PERMIT NUMBER: 732099

Date Paid: 20-NOV-12	Expires On: 20-NOV-13

For inspections, click the 'Request Inspection' link on the permit list screen

GARY ALPHONSE THIAVILLE
STURGEON ELEC CO INC
12150 E 112TH AVE
HENDERSON, CO 80640

Registration Number: 3

Trim Permit: N

Daytime Phone: (303) 286-8000

FAX:
( ) -

Power Supplier: SAN MIGUEL POWER

Owner Name: RICO ARGENTINE MINE SITE

RICO ARGENTINE MINE SITE

Address: 1 SOUTH GLASGOW
City: RICO, CO. 81332

COMMERCIAL NEW

Driving Directions: Call Mike Lagage for directions 303-591-2925

Brief Description: Install new service lime building

Inspector: Gary Freeman	855-451-9794
Cost of work: $5,500.00	Fee Amount: $160.00 Paid

COLORADO STATE ELECTRICAL BOARD
DEPARTMENT OF REGULATORY AGENCIES
1560 Broadway. Suite 1500
Denver, Colorado 80202
Phone: (303) 894-2985

Colorado The Official State Web Portal

Dora Department of Regulatory Agencies

Division of Professions and Occupations

Electrical and Plumbing Permits Online

State of Colorado

Electrical and Plumbing permit search results.

Permit Number: 732099

Address: 1 South Glasgow		Job Description: Private Property
City: Rico	County: Dolores	
Permit Type: ELECTRICAL	Issue Date: 20-NOV-12	Permit Status: CLOSED
Building Type: COMMERCIAL	Construction Type: NEW	Misc: COMMERCIAL NEW
Last Inspection Performed:	E_FINAL_COMP - ACCEPTED	
Trim: N		

Back to Search Print Cancel

* Questions? Check out the Definitions Page or Frequently Asked Questions (FAQ).

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Technical Assistance:
E-mail Information Technology Section

E-Mail the Division of Professions and Occupations
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(303) 894-2300 - Phone
(303) 894-2310 - Fax
Relay Colorado
(TTY (English & Spanish), Voice, VCO, ASCII, STS Assistance Numbers)

Consumer Protection

APPENDIX E

Laboratory Analytical Reports

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

November 05, 2012

Lynda Lombardi
AMEC Environmental & Infrastructure, Inc.
10670 White Rock Road
Suite 100
Rancho Cordova, CA 95670

RE: Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Dear Lynda Lombardi:
Enclosed are the analytical results for sample(s) received by the laboratory on October 22, 2012. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heather M. Wilson

Heather Wilson

heather.wilson@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
A2LA Certification #: 2456.01
Arkansas Certification #: 12-019-0
Illinois Certification #: 002885
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-12-3
Utah Certification #: KS000212012-2

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Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60131706001	SLSWP11OUT121018	Water	10/18/12 13:55	10/22/12 10:20

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Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60131706001	SLSWP11OUT121018	EPA 200.7	TDS	5
		EPA 200.7	TDS	5
		EPA 200.8	JGP, SMW	18
		EPA 200.8	JGP, SMW	18
		SM 2320B	DJR	4
		SM 2540D	FJF	1
		EPA 300.0	AJM	1

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PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Method: EPA 200.7
Description: 200.7 Metals, Total
Client: BP AMEC
Date: November 05, 2012

General Information:
1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20131

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60131762003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1085508)
  - Calcium
- MSD (Lab ID: 1085509)
  - Calcium

Additional Comments:

Analyte Comments:

QC Batch: MPRP/20131

B: Analyte was detected in the associated method blank.

- SLSWP11OUT121018 (Lab ID: 60131706001)
  - Potassium

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PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Method: EPA 200.7
Description: 200.7 Metals, Dissolved
Client: BP AMEC
Date: November 05, 2012

General Information:
1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20130

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60131762003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1085501)
  - Calcium, Dissolved
- MSD (Lab ID: 1085502)
  - Calcium, Dissolved

Additional Comments:

Analyte Comments:

QC Batch: MPRP/20130

B: Analyte was detected in the associated method blank.

- SLSWP11OUT121018 (Lab ID: 60131706001)
  - Potassium, Dissolved

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PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Method: EPA 200.8
Description: 200.8 MET ICPMS
Client: BP AMEC
Date: November 05, 2012

General Information:
1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20133

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60131762003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 1085517)
  - Manganese

Additional Comments:

Analyte Comments:

QC Batch: MPRP/20133

B: Analyte was detected in the associated method blank.

- SLSWP11OUT121018 (Lab ID: 60131706001)
  - Barium
  - Thallium

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(913)599-5665

PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Method: EPA 200.8
Description: 200.8 MET ICPMS
Client: BP AMEC
Date: November 05, 2012

Analyte Comments:

QC Batch: MPRP/20133

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- SLSWP11OUT121018 (Lab ID: 60131706001)
  - Silver
  - Arsenic
  - Chromium
  - Selenium

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PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Method: EPA 200.8
Description: 200.8 MET ICPMS, Dissolved
Client: BP AMEC
Date: November 05, 2012

General Information:
1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (Including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MPRP/20132

B: Analyte was detected in the associated method blank.
- SLSWP11OUT121018 (Lab ID: 60131706001)
  - Barium, Dissolved
  - Thallium, Dissolved

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
- SLSWP11OUT121018 (Lab ID: 60131706001)
  - Aluminum, Dissolved
  - Arsenic, Dissolved
  - Beryllium, Dissolved
  - Chromium, Dissolved
  - Lead, Dissolved
  - Selenium, Dissolved

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Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Method: EPA 200.8
Description: 200.8 MET ICPMS, Dissolved
Client: BP AMEC
Date: November 05, 2012

Analyte Comments:

QC Batch: MPRP/20200

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- SLSWP11OUT121018 (Lab ID: 60131706001)
  - Silver, Dissolved

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(913)599-5665

PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Method: SM 2320B
Description: 2320B Alkalinity
Client: BP AMEC
Date: November 05, 2012

General Information:
1 sample was analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Method: SM 2540D
Description: 2540D Total Suspended Solids
Client: BP AMEC
Date: November 05, 2012

General Information:
1 sample was analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Method: EPA 300.0
Description: 300.0 IC Anions 28 Days
Client: BP AMEC
Date: November 05, 2012

General Information:
1 sample was analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Sample: SLSWP11OUT121018 **Lab ID: 60131706001** Collected: 10/18/12 13:55 Received: 10/22/12 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**226000**	ug/L	100	35.8	1	10/23/12 18:00	10/25/12 11:18	7440-70-2	
Iron	**3240**	ug/L	50.0	17.2	1	10/23/12 18:00	10/25/12 11:18	7439-89-6	
Magnesium	**20300**	ug/L	50.0	17.2	1	10/23/12 18:00	10/25/12 11:18	7439-95-4	
Potassium	**62300**	ug/L	500	64.1	1	10/23/12 18:00	10/25/12 11:18	7440-09-7	B
Sodium	**11800**	ug/L	500	40.1	1	10/23/12 18:00	10/25/12 11:18	7440-23-5	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**215000**	ug/L	100	35.8	1	10/23/12 18:00	10/25/12 10:41	7440-70-2	
Iron, Dissolved	ND	ug/L	50.0	17.2	1	10/23/12 18:00	10/25/12 10:41	7439-89-6	
Magnesium, Dissolved	**19400**	ug/L	50.0	17.2	1	10/23/12 18:00	10/25/12 10:41	7439-95-4	
Potassium, Dissolved	**60400**	ug/L	500	64.1	1	10/23/12 18:00	10/25/12 10:41	7440-09-7	B
Sodium, Dissolved	**11400**	ug/L	500	40.1	1	10/23/12 18:00	10/25/12 10:41	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum	**190J**	ug/L	250	26.0	5	10/23/12 18:00	10/29/12 11:51	7429-90-5	
Antimony	**0.65J**	ug/L	5.0	0.18	5	10/23/12 18:00	10/27/12 15:17	7440-36-0	
Arsenic	ND	ug/L	5.0	0.70	5	10/23/12 18:00	10/24/12 14:39	7440-38-2	D3
Barium	**101**	ug/L	5.0	0.42	5	10/23/12 18:00	10/27/12 15:17	7440-39-3	B
Beryllium	**0.34J**	ug/L	2.5	0.33	5	10/23/12 18:00	10/24/12 14:39	7440-41-7	
Cadmium	**13.3**	ug/L	2.5	0.48	5	10/23/12 18:00	10/24/12 14:39	7440-43-9	
Chromium	ND	ug/L	5.0	0.55	5	10/23/12 18:00	10/24/12 14:39	7440-47-3	D3
Cobalt	**1.9J**	ug/L	5.0	0.24	5	10/23/12 18:00	10/24/12 14:39	7440-48-4	
Copper	**42.7**	ug/L	5.0	2.2	5	10/23/12 18:00	10/24/12 14:39	7440-50-8	
Lead	**4.9J**	ug/L	5.0	0.26	5	10/23/12 18:00	10/24/12 14:39	7439-92-1	
Manganese	**1430**	ug/L	5.0	1.2	5	10/23/12 18:00	10/24/12 14:39	7439-96-5	
Molybdenum	**14.5**	ug/L	5.0	0.80	5	10/23/12 18:00	10/29/12 11:51	7439-98-7	
Nickel	**2.5J**	ug/L	5.0	1.8	5	10/23/12 18:00	10/24/12 14:39	7440-02-0	
Selenium	ND	ug/L	5.0	1.8	5	10/23/12 18:00	10/24/12 14:39	7782-49-2	D3
Silver	ND	ug/L	2.5	0.30	5	10/23/12 18:00	10/30/12 18:10	7440-22-4	D3
Thallium	**1.8J**	ug/L	5.0	0.11	5	10/23/12 18:00	10/27/12 15:17	7440-28-0	B
Vanadium	ND	ug/L	5.0	1.4	5	10/23/12 18:00	10/27/12 15:17	7440-62-2	
Zinc	**2520**	ug/L	50.0	8.0	5	10/23/12 18:00	10/24/12 14:39	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	ND	ug/L	250	26.0	5	10/23/12 18:00	10/29/12 12:28	7429-90-5	D3
Antimony, Dissolved	**1.1J**	ug/L	5.0	0.18	5	10/23/12 18:00	10/27/12 14:40	7440-36-0	
Arsenic, Dissolved	ND	ug/L	5.0	0.70	5	10/23/12 18:00	10/24/12 15:16	7440-38-2	D3
Barium, Dissolved	**95.4**	ug/L	5.0	0.42	5	10/23/12 18:00	10/27/12 14:40	7440-39-3	B
Beryllium, Dissolved	ND	ug/L	2.5	0.33	5	10/23/12 18:00	10/24/12 15:16	7440-41-7	D3
Cadmium, Dissolved	**8.8**	ug/L	2.5	0.48	5	10/23/12 18:00	10/24/12 15:16	7440-43-9	
Chromium, Dissolved	ND	ug/L	5.0	0.55	5	10/23/12 18:00	10/24/12 15:16	7440-47-3	D3
Cobalt, Dissolved	**1.9J**	ug/L	5.0	0.24	5	10/23/12 18:00	10/24/12 15:16	7440-48-4	
Copper, Dissolved	ND	ug/L	5.0	2.2	5	10/23/12 18:00	10/24/12 15:16	7440-50-8	
Lead, Dissolved	ND	ug/L	5.0	0.26	5	10/23/12 18:00	10/24/12 15:16	7439-92-1	D3
Manganese, Dissolved	**1340**	ug/L	5.0	1.2	5	10/23/12 18:00	10/24/12 15:16	7439-96-5	
Molybdenum, Dissolved	**17.3**	ug/L	5.0	0.80	5	10/23/12 18:00	10/29/12 12:28	7439-98-7	

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ANALYTICAL RESULTS

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Sample: SLSWP11OUT121018 **Lab ID: 60131706001** Collected: 10/18/12 13:55 Received: 10/22/12 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Nickel, Dissolved	**2.0J**	ug/L	5.0	1.8	5	10/23/12 18:00	10/24/12 15:16	7440-02-0	
Selenium, Dissolved	ND	ug/L	5.0	1.8	5	10/23/12 18:00	10/24/12 15:16	7782-49-2	D3
Silver, Dissolved	ND	ug/L	2.5	0.30	5	10/26/12 17:30	10/30/12 18:26	7440-22-4	D3
Thallium, Dissolved	**2.2J**	ug/L	5.0	0.11	5	10/23/12 18:00	10/27/12 14:40	7440-28-0	B
Vanadium, Dissolved	ND	ug/L	5.0	1.4	5	10/23/12 18:00	10/27/12 14:40	7440-62-2	
Zinc, Dissolved	**1640**	ug/L	50.0	8.0	5	10/23/12 18:00	10/24/12 15:16	7440-66-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**113**	mg/L	20.0	1.2	1		10/24/12 12:53		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1.2	1		10/24/12 12:53		
Alkalinity, Hydroxide (CaCO3)	ND	mg/L	20.0	1.2	1		10/24/12 12:53		
Alkalinity, Total as CaCO3	**113**	mg/L	20.0	1.2	1		10/24/12 12:53		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**7.0**	mg/L	5.0	5.0	1		10/25/12 10:28		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**652**	mg/L	50.0	6.0	50		10/28/12 14:42	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

QC Batch: MPRP/20131
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60131706001

METHOD BLANK: 1085506 Matrix: Water
Associated Lab Samples: 60131706001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	ug/L	ND	100	10/25/12 10:48	
Iron	ug/L	ND	50.0	10/25/12 10:48	
Magnesium	ug/L	ND	50.0	10/25/12 10:48	
Potassium	ug/L	236J	500	10/25/12 10:48	
Sodium	ug/L	ND	500	10/25/12 10:48	

LABORATORY CONTROL SAMPLE: 1085507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	10000	9320	93	85-115	
Iron	ug/L	10000	9440	94	85-115	
Magnesium	ug/L	10000	9110	91	85-115	
Potassium	ug/L	10000	9500	95	85-115	
Sodium	ug/L	10000	9720	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1085508 1085509

Parameter	Units	60131762003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	209000	10000	10000	229000	227000	208	185	70-130	1	9	M1
Iron	ug/L	3670	10000	10000	13400	13400	97	97	70-130	0	10	
Magnesium	ug/L	18100	10000	10000	29000	28800	110	107	70-130	1	9	
Potassium	ug/L	61100	10000	10000	73100	72800	120	117	70-130	0	7	
Sodium	ug/L	11100	10000	10000	21800	21800	107	107	70-130	0	8	

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

QC Batch: MPRP/20130 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Dissolved
Associated Lab Samples: 60131706001

METHOD BLANK: 1085499 Matrix: Water
Associated Lab Samples: 60131706001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium, Dissolved	ug/L	ND	100	10/25/12 10:18	
Iron, Dissolved	ug/L	ND	50.0	10/25/12 10:18	
Magnesium, Dissolved	ug/L	ND	50.0	10/25/12 10:18	
Potassium, Dissolved	ug/L	186J	500	10/25/12 10:18	
Sodium, Dissolved	ug/L	ND	500	10/25/12 10:18	

LABORATORY CONTROL SAMPLE: 1085500

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	ug/L	10000	9380	94	85-115	
Iron, Dissolved	ug/L	10000	9400	94	85-115	
Magnesium, Dissolved	ug/L	10000	9080	91	85-115	
Potassium, Dissolved	ug/L	10000	9400	94	85-115	
Sodium, Dissolved	ug/L	10000	9620	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1085501 1085502

Parameter	Units	60131762003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	ug/L	215000	10000	10000	217000	216000	22	14	70-130	0	9	M1
Iron, Dissolved	ug/L	221	10000	10000	9620	9420	94	92	70-130	2	10	
Magnesium, Dissolved	ug/L	18100	10000	10000	26400	26800	83	87	70-130	2	9	
Potassium, Dissolved	ug/L	62300	10000	10000	69600	69600	73	73	70-130	0	7	
Sodium, Dissolved	ug/L	11300	10000	10000	20900	20900	96	96	70-130	0	8	

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

QC Batch: MPRP/20133 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60131706001

METHOD BLANK: 1085514 Matrix: Water
Associated Lab Samples: 60131706001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	50.0	10/29/12 11:43	
Antimony	ug/L	ND	1.0	10/27/12 14:49	
Arsenic	ug/L	ND	1.0	10/24/12 14:11	
Barium	ug/L	0.26J	1.0	10/27/12 14:49	
Beryllium	ug/L	ND	0.50	10/24/12 14:11	
Cadmium	ug/L	ND	0.50	10/24/12 14:11	
Chromium	ug/L	ND	1.0	10/24/12 14:11	
Cobalt	ug/L	ND	1.0	10/24/12 14:11	
Copper	ug/L	ND	1.0	10/24/12 14:11	
Lead	ug/L	ND	1.0	10/24/12 14:11	
Manganese	ug/L	ND	1.0	10/24/12 14:11	
Molybdenum	ug/L	ND	1.0	10/29/12 11:43	
Nickel	ug/L	ND	1.0	10/24/12 14:11	
Selenium	ug/L	ND	1.0	10/24/12 14:11	
Thallium	ug/L	0.35J	1.0	10/27/12 14:49	
Vanadium	ug/L	ND	1.0	10/27/12 14:49	
Zinc	ug/L	ND	10.0	10/24/12 14:11	

LABORATORY CONTROL SAMPLE: 1085515

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	1000	969	97	85-115	
Antimony	ug/L	40	40.7	102	85-115	
Arsenic	ug/L	40	40.2	100	85-115	
Barium	ug/L	40	39.3	98	85-115	
Beryllium	ug/L	40	39.9	100	85-115	
Cadmium	ug/L	40	41.0	103	85-115	
Chromium	ug/L	40	41.2	103	85-115	
Cobalt	ug/L	40	39.4	99	85-115	
Copper	ug/L	40	39.6	99	85-115	
Lead	ug/L	40	39.8	100	85-115	
Manganese	ug/L	40	40.9	102	85-115	
Molybdenum	ug/L	40	39.7	99	85-115	
Nickel	ug/L	40	39.8	100	85-115	
Selenium	ug/L	40	41.1	103	85-115	
Thallium	ug/L	40	38.8	97	85-115	
Vanadium	ug/L	40	39.9	100	85-115	
Zinc	ug/L	100	110	110	85-115	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1085516 1085517

Parameter	Units	60131762003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	171J	1000	1000	1110	1060	94	89	70-130	5	20	
Antimony	ug/L	ND	40	40	41.2	40.8	103	102	70-130	1	20	
Arsenic	ug/L	ND	40	40	41.6	41.2	103	102	70-130	1	20	
Barium	ug/L	20.8	40	40	59.9	59.6	98	97	70-130	1	20	
Beryllium	ug/L	0.58J	40	40	39.8	39.4	98	97	70-130	1	20	
Cadmium	ug/L	15.4	40	40	55.4	56.6	100	103	70-130	2	20	
Chromium	ug/L	ND	40	40	40.8	39.6	102	99	70-130	3	20	
Cobalt	ug/L	2.5J	40	40	41.4	40.7	97	95	70-130	2	20	
Copper	ug/L	38.5	40	40	76.6	75.6	95	93	70-130	1	20	
Lead	ug/L	1.6J	40	40	41.1	40.5	99	97	70-130	2	20	
Manganese	ug/L	1790	40	40	1830	1820	99	69	70-130	1	20	M1
Molybdenum	ug/L	17.1	40	40	58.8	58.7	104	104	70-130	0	20	
Nickel	ug/L	3.3J	40	40	41.1	41.4	95	95	70-130	1	20	
Selenium	ug/L	ND	40	40	39.7	40.3	99	100	70-130	1	20	
Thallium	ug/L	2.0J	40	40	40.6	40.4	96	96	70-130	1	20	
Vanadium	ug/L	ND	40	40	38.2	40.8	93	100	70-130	6	20	
Zinc	ug/L	3010	100	100	3120	3100	111	87	70-130	1	20	

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

QC Batch: MPRP/20132 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET Dissolved
Associated Lab Samples: 60131706001

METHOD BLANK: 1085510 Matrix: Water
Associated Lab Samples: 60131706001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	5.7J	50.0	10/29/12 12:20	
Antimony, Dissolved	ug/L	ND	1.0	10/27/12 14:16	
Arsenic, Dissolved	ug/L	ND	1.0	10/24/12 14:49	
Barium, Dissolved	ug/L	0.20J	1.0	10/27/12 14:16	
Beryllium, Dissolved	ug/L	ND	0.50	10/24/12 14:49	
Cadmium, Dissolved	ug/L	ND	0.50	10/24/12 14:49	
Chromium, Dissolved	ug/L	ND	1.0	10/24/12 14:49	
Cobalt, Dissolved	ug/L	ND	1.0	10/24/12 14:49	
Copper, Dissolved	ug/L	ND	1.0	10/24/12 14:49	
Lead, Dissolved	ug/L	ND	1.0	10/24/12 14:49	
Manganese, Dissolved	ug/L	ND	1.0	10/24/12 14:49	
Molybdenum, Dissolved	ug/L	ND	1.0	10/29/12 12:20	
Nickel, Dissolved	ug/L	ND	1.0	10/24/12 14:49	
Selenium, Dissolved	ug/L	ND	1.0	10/24/12 14:49	
Thallium, Dissolved	ug/L	0.32J	1.0	10/27/12 14:16	
Vanadium, Dissolved	ug/L	ND	1.0	10/27/12 14:16	
Zinc, Dissolved	ug/L	ND	10.0	10/24/12 14:49	

LABORATORY CONTROL SAMPLE: 1085511

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	1000	949	95	85-115	
Antimony, Dissolved	ug/L	40	40.4	101	85-115	
Arsenic, Dissolved	ug/L	40	39.4	99	85-115	
Barium, Dissolved	ug/L	40	39.3	98	85-115	
Beryllium, Dissolved	ug/L	40	41.2	103	85-115	
Cadmium, Dissolved	ug/L	40	40.7	102	85-115	
Chromium, Dissolved	ug/L	40	39.7	99	85-115	
Cobalt, Dissolved	ug/L	40	38.3	96	85-115	
Copper, Dissolved	ug/L	40	39.0	98	85-115	
Lead, Dissolved	ug/L	40	39.4	98	85-115	
Manganese, Dissolved	ug/L	40	39.9	100	85-115	
Molybdenum, Dissolved	ug/L	40	38.9	97	85-115	
Nickel, Dissolved	ug/L	40	38.7	97	85-115	
Selenium, Dissolved	ug/L	40	40.3	101	85-115	
Thallium, Dissolved	ug/L	40	38.4	96	85-115	
Vanadium, Dissolved	ug/L	40	39.1	98	85-115	
Zinc, Dissolved	ug/L	100	106	106	85-115	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1085512 1085513

Parameter	Units	60131762003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	1000	1000	797	799	78	79	70-130	0	20	
Antimony, Dissolved	ug/L	ND	40	40	41.3	40.7	103	102	70-130	2	20	
Arsenic, Dissolved	ug/L	ND	40	40	40.5	40.8	101	101	70-130	1	20	
Barium, Dissolved	ug/L	18.9	40	40	58.7	58.7	99	99	70-130	0	20	
Beryllium, Dissolved	ug/L	0.48J	40	40	39.6	40.4	98	100	70-130	2	20	
Cadmium, Dissolved	ug/L	13.6	40	40	54.2	54.6	101	102	70-130	1	20	
Chromium, Dissolved	ug/L	ND	40	40	39.1	39.7	98	99	70-130	2	20	
Cobalt, Dissolved	ug/L	2.4J	40	40	40.0	40.7	94	96	70-130	2	20	
Copper, Dissolved	ug/L	3.1J	40	40	41.3	41.5	96	96	70-130	1	20	
Lead, Dissolved	ug/L	ND	40	40	38.8	39.4	97	98	70-130	1	20	
Manganese, Dissolved	ug/L	1760	40	40	1800	1790	110	81	70-130	1	20	
Molybdenum, Dissolved	ug/L	16.3	40	40	57.3	57.4	102	103	70-130	0	20	
Nickel, Dissolved	ug/L	2.7J	40	40	40.7	42.0	95	98	70-130	3	20	
Selenium, Dissolved	ug/L	ND	40	40	40.4	40.1	101	100	70-130	1	20	
Thallium, Dissolved	ug/L	1.8J	40	40	40.2	40.6	96	97	70-130	1	20	
Vanadium, Dissolved	ug/L	ND	40	40	45.0	43.0	112	106	70-130	5	20	
Zinc, Dissolved	ug/L	2810	100	100	2930	2940	123	128	70-130	0	20	

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

QC Batch: MPRP/20200 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET Dissolved
Associated Lab Samples: 60131706001

METHOD BLANK: 1088224 Matrix: Water
Associated Lab Samples: 60131706001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Silver, Dissolved	ug/L	ND	0.50	10/30/12 17:41	

LABORATORY CONTROL SAMPLE: 1088225

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Silver, Dissolved	ug/L	20	20.1	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1088226 1088227

Parameter	Units	60131706001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Silver, Dissolved	ug/L	ND	20	20	18.6	18.8	93	94	70-130	1	20	

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

QC Batch: WET/37848 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60131706001

METHOD BLANK: 1085484 Matrix: Water
Associated Lab Samples: 60131706001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	20.0	10/24/12 10:56	
Alkalinity, Hydroxide (CaCO3)	mg/L	ND	20.0	10/24/12 10:56	
Alkalinity, Total as CaCO3	mg/L	ND	20.0	10/24/12 10:56	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	20.0	10/24/12 10:56	

LABORATORY CONTROL SAMPLE: 1085485

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	493	99	90-110	

SAMPLE DUPLICATE: 1085486

Parameter	Units	60131463001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		24	
Alkalinity, Hydroxide (CaCO3)	mg/L	ND	ND		27	
Alkalinity, Total as CaCO3	mg/L	223	227	2	9	
Alkalinity,Bicarbonate (CaCO3)	mg/L	223	227	2	9	

SAMPLE DUPLICATE: 1085487

Parameter	Units	60131643002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		24	
Alkalinity, Hydroxide (CaCO3)	mg/L	ND	ND		27	
Alkalinity, Total as CaCO3	mg/L	499	522	5	9	
Alkalinity,Bicarbonate (CaCO3)	mg/L	499	522	5	9	

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

QC Batch: WET/37859 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 60131706001

METHOD BLANK: 1085814 Matrix: Water
Associated Lab Samples: 60131706001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	10/25/12 10:27	

SAMPLE DUPLICATE: 1085815

Parameter	Units	60131639001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	7.0	7.0	0	25	

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

QC Batch: WETA/22230 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60131706001

METHOD BLANK: 1088610 Matrix: Water
Associated Lab Samples: 60131706001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	10/28/12 14:07	

LABORATORY CONTROL SAMPLE: 1088611

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1088612 1088613

Parameter	Units	60131933014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	95.3	50	50	140	140	89	90	61-119	0	10	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60131706

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60131706001	SLSWP11OUT121018	EPA 200.7	MPRP/20131	EPA 200.7	ICP/16494
60131706001	SLSWP11OUT121018	EPA 200.7	MPRP/20130	EPA 200.7	ICP/16493
60131706001	SLSWP11OUT121018	EPA 200.8	MPRP/20133	EPA 200.8	ICPM/1760
60131706001	SLSWP11OUT121018	EPA 200.8	MPRP/20133	EPA 200.8	ICPM/1778
60131706001	SLSWP11OUT121018	EPA 200.8	MPRP/20132	EPA 200.8	ICPM/1759
60131706001	SLSWP11OUT121018	EPA 200.8	MPRP/20200	EPA 200.8	ICPM/1777
60131706001	SLSWP11OUT121018	SM 2320B	WET/37848		
60131706001	SLSWP11OUT121018	SM 2540D	WET/37859		
60131706001	SLSWP11OUT121018	EPA 300.0	WETA/22230		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt
ESI Tech Spec Client

WO# : 60131706

60131706

Client Name: BP Amec Project #:

Optional
Proj Due Date:
Proj Name:

Courier: Fed Ex ☐ UPS ☑ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

Tracking #: 1Z733W87 22 1005 6879 Pace Shipping Label Used? Yes ☑ No ☐

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☑ ZPLC

Thermometer Used: (T-191) T-194 **Type of Ice:** (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 0.5

Temperature should be above freezing to 6°C

Date and initials of person examining contents: _____

Chain of Custody present:	☑Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☑Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☑Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☑Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time requested:	☑Yes ☐No ☐N/A	7. 48 hr
Sufficient volume:	☑Yes ☐No ☐N/A	8.
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	9.
Containers intact:	☑Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☑N/A	11.
Filtered volume received for dissolved tests?	☑Yes ☐No ☐N/A	12.
Sample labels match COC: Includes date/time/ID/analyses Matrix: WT	☑Yes ☐No ☐N/A	13.
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	14.
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	☐Yes ☑No	Initial when completed / Lot # of added preservative
Trip Blank present: Pace Trip Blank lot # (if purchased): _____	☐Yes ☐No ☑N/A	15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:

Client Notification/ Resolution: Copy COC to Client? Y / (N) Field Data Required? Y / N

Person Contacted: Lynda Lombardi Date/Time: 10/22/12

Comments/ Resolution: Lynda dtmw 10/22/12 No longer Rush & don't need Li & tlg. dtmw 10/22/12

Project Manager Review: dtmw Date: 10/22/12

Temp Log: Record start and finish times when unpacking cooler, if >20 min, recheck sample temps.

Start: 1215	Start
End: 1220	End:
Temp:	Temp:

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: Rico-Argentine Mine Site
Req Due Date (mm/dd/yy): ______ Rush TAT: Yes X No ___
BP/ARC Facility No: ______
Lab Work Order Number: ______

Lab Name: Pace Analytical Laboratories, Inc.	BP/ARC Facility Address: Rico-Argentine Mine	Consultant/Contractor: AMEC E&I, Inc.
Lab Address: 9608 Loiret Blvd., Lenexa, KS 66219	City, State, ZIP Code: Rico, Colorado 81332	Consultant/Contractor Project No: SA11161302.200A
Lab PM: Heather Wilson	Lead Regulatory Agency: U.S. EPA Region 8	Address: 10670 White Rock Road, Suite 100, Rancho Cordova, CA
Lab Phone: (913) 563-1407	California Global ID No.: NA	Consultant/Contractor PM: Marc Lombardi
Lab Shipping Accnt: UPS # 733W87	Enfos Proposal No: D009D-0024 (WR 251660)	Phone: 916-636-3200
Lab Bottle Order No: NA	Accounting Mode: Provision x OOC-BU ___ OOC-RM ___	Email Report/EDD To: lynda.lombardi@amec.com
Other Info: Wetland Pilot Scale Test	Stage: 4-Execute Activity: Spend	Invoice To: BP/ARC x Contractor ___

BP/ARC EBM: Anthony Brown
EBM Phone: 714-228-6770
EBM Email: anthony.brown@bp.com

Report Type & QC Level: Standard X Full Data Package ___

60131706

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor		Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl		RUSH	Tot Metals-see notes (E200.7/200.8/245.1)	Dis Metals-see notes (E200.7/200.8/245.1)	Dissolved Lithium (E200.7)	Sulfate (E300.0)	Alkalinity-Total,HCO3,CO3,OH (SM2320B)	Total Suspended Solids (SM2540D)	Total Organic Carbon (SM 5310B)	Biological Oxygen Demand (SM 5210B)	MS/MSD	HOLD	Comments
	SLSWP11OUT121018	10/18/12	1355		X	2BP2U		5	2	Ø	3	Ø		X	X	X	X	X	X	X	1BP3N	1.5	2BP3F	1.5	Dissolved metals are field filtered.
																									Metals are: Ca, Fe, K, Na, Mg (E200.7);
																									Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn,
																									Mo, Ni, Pb, Sb, Se, Tl, V, Zn (E200.8);
																									Hg (E245.1)
																									48-hour turnaround on rushed samples

Comments note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.

Sampler's Name: Hallie Bevan Simpson
Sampler's Company: AMEC
Shipment Method: UPS Ship Date: 10/19/12
Shipment Tracking No: 1Z733W8722100568 78

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Hallie B Simpson	10/19/12	1400	[signature]	10/20/12	1020

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No (Yes circled) | Temp Blank: Yes / No (Yes circled) | Cooler Temp on Receipt: 0.5 °F/C | Trip Blank: Yes / No (No circled) | MS/MSD Sample Submitted: Yes / No (No circled)

REVISED

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program LaMP Chain of Custody Record

Page 1 of 1

BP/ARC Project Name: Rico-Argentine Mine Site
Req Due Date (mm/dd/yy): _____ Rush TAT: Yes X No ___
BP/ARC Facility No: _____
Lab Work Order Number: _____

Lab Name:	Pace Analytical Laboratories, Inc.	BP/ARC Facility Address:	Rico-Argentine Mine	Consultant/Contractor:	AMEC E&I, Inc.
Lab Address:	9608 Loiret Blvd., Lenexa, KS 66219	City, State, ZIP Code:	Rico, Colorado 81332	Consultant/Contractor Project No:	SA11161302.200A
Lab PM:	Heather Wilson	Lead Regulatory Agency:	U.S. EPA Region 8	Address:	10670 White Rock Road, Suite 100, Rancho Cordova, CA
Lab Phone:	(913) 563-1407	California Global ID No.:	NA	Consultant/Contractor PM:	Marc Lombardi
Lab Shipping Acct:	UPS # 793W87	Enfos Proposal No:	D009D-0024 (~~WR 254866~~) WR256704	Phone:	916-636-3200
Lab Bottle Order No:	NA	Accounting Mode:	Provision X OOC-BU ___ OOC-RM ___	Email Report/EDD To:	lynda.lombardi@amec.com
Other Info:	Wetland Pilot Scale Test	Stage:	4-Execute Activity: Spend	Invoice To:	BP/ARC x Contractor ___
BP/ARC EBM:	Anthony Brown				
EBM Phone:	714-228-6770				
EBM Email:	anthony.brown@bp.com				

Lab No.	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor		Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl		RUSH	Tot Metals-see notes (E200.7/200.8/245.1) 10/23/12	Dis Metals-see notes (E200.7/200.8/245.1) 10/23/12	Dissolved Lithium (E200.7) 10/23/12	Hg (E245.1) CANCEL	Sulfate (E300.0)	Alkalinity-Total,HCO3,CO3,OH (SM2320B)	Total Suspended Solids (SM2540D)	Total Organic Carbon (SM 5310B)	Biological Oxygen Demand (SM 5210B)	MS/MSD	HOLD	Comments
	SLSWP110UT121018	10/18/12	1355		X			5	2	0	3	0		X	X	X	X	0	X	X	X					Dissolved metals are field filtered.
																										Metals are: Ca, Fe, K, Na, Mg (E200.7);
																										Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn,
																										Mo, Ni, Pb, Sb, Se, Tl, V, Zn (E200.8);
																										Hg (E245.1) CANCEL 10/23/12
																										~~48-hour turnaround on rushed samples~~
																										Standard TAT 10/23/12
																										Changes on 10/23/12

Sampler's Name:	Hallie Beran Simpson	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company:	AMEC						
Shipment Method:	UPS Ship Date: 10/19/12		10/19/12	1400			
Shipment Tracking No:	1Z733W872210056878						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals in Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: _____ °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

Pace Analytical Services, Inc.
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Lenexa, KS 66219
(913)599-5665

November 08, 2012

Lynda Lombardi
AMEC Environmental & Infrastructure, Inc.
10670 White Rock Road
Suite 100
Rancho Cordova, CA 95670

RE: Project: RICO ARGENTINE MINE SITE — Revised Report 11/9/12_rev.1
Pace Project No.: 60132044 — Certifications Corrected

Dear Lynda Lombardi:
Enclosed are the analytical results for sample(s) received by the laboratory on October 26, 2012. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

This report revision is being issued to correct an error in the listing of certification numbers. There are no changes to any reported result.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heather M. Wilson

Heather Wilson

heather.wilson@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
A2LA Certification #: 2456.01
Arkansas Certification #: 12-019-0
Illinois Certification #: 002885
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-12-3
Utah Certification #: KS000212012-2

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SAMPLE SUMMARY

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60132044001	SLSWP11121025	Water	10/25/12 10:35	10/26/12 10:00

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SAMPLE ANALYTE COUNT

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60132044001	SLSWP11121025	EPA 200.7	SMW	5
		EPA 200.7	SMW	5
		EPA 200.8	JGP	10
		EPA 200.8	JGP	10
		SM 2320B	DJR	4
		SM 2540D	FJF	1
		EPA 300.0	AJM	1

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PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Method: EPA 200.7
Description: 200.7 Metals, Total
Client: BP AMEC
Date: November 08, 2012

General Information:
1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20195

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60132044001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1087840)
  - Calcium
- MSD (Lab ID: 1087841)
  - Calcium

Additional Comments:

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PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Method: EPA 200.7
Description: 200.7 Metals, Dissolved
Client: BP AMEC
Date: November 08, 2012

General Information:
1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20194

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60132044001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1087836)
  - Calcium, Dissolved
- MSD (Lab ID: 1087837)
  - Calcium, Dissolved

Additional Comments:

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PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Method: EPA 200.8
Description: 200.8 MET ICPMS
Client: BP AMEC
Date: November 08, 2012

General Information:
1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20197

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60132045002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1087850)
  - Manganese
  - Zinc
- MSD (Lab ID: 1087851)
  - Manganese
  - Zinc

Additional Comments:

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Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Method: EPA 200.8
Description: 200.8 MET ICPMS
Client: BP AMEC
Date: November 08, 2012

Analyte Comments:

QC Batch: MPRP/20197

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- SLSWP11121025 (Lab ID: 60132044001)
  - Arsenic
  - Chromium
  - Selenium

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PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Method: EPA 200.8
Description: 200.8 MET ICPMS, Dissolved
Client: BP AMEC
Date: November 08, 2012

General Information:
1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20196

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60132044001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1087844)
  - Manganese, Dissolved
  - Zinc, Dissolved
- MSD (Lab ID: 1087845)
  - Manganese, Dissolved
  - Zinc, Dissolved

Additional Comments:

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(913)599-5665

PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Method: **EPA 200.8**
Description: 200.8 MET ICPMS, Dissolved
Client: BP AMEC
Date: November 08, 2012

Analyte Comments:

QC Batch: MPRP/20196

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- SLSWP11121025 (Lab ID: 60132044001)
  - Arsenic, Dissolved
  - Chromium, Dissolved
  - Copper, Dissolved
  - Lead, Dissolved
  - Selenium, Dissolved

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PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Method: SM 2320B
Description: 2320B Alkalinity
Client: BP AMEC
Date: November 08, 2012

General Information:
1 sample was analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Method: SM 2540D
Description: 2540D Total Suspended Solids
Client: BP AMEC
Date: November 08, 2012

General Information:
1 sample was analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Method: EPA 300.0
Description: 300.0 IC Anions 28 Days
Client: BP AMEC
Date: November 08, 2012

General Information:
1 sample was analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Sample: SLSWP11121025 Lab ID: **60132044001** Collected: 10/25/12 10:35 Received: 10/26/12 10:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**215000**	ug/L	100	35.8	1	10/26/12 17:30	10/27/12 12:03	7440-70-2	M1
Iron	**1540**	ug/L	50.0	17.2	1	10/26/12 17:30	10/27/12 12:03	7439-89-6	
Magnesium	**18400**	ug/L	50.0	17.2	1	10/26/12 17:30	10/27/12 12:03	7439-95-4	
Potassium	**63700**	ug/L	500	64.1	1	10/26/12 17:30	10/27/12 12:03	7440-09-7	
Sodium	**11100**	ug/L	500	40.1	1	10/26/12 17:30	10/27/12 12:03	7440-23-5	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**226000**	ug/L	100	35.8	1	10/26/12 17:30	10/27/12 12:23	7440-70-2	D9,M1
Iron, Dissolved	ND	ug/L	50.0	17.2	1	10/26/12 17:30	10/27/12 12:23	7439-89-6	
Magnesium, Dissolved	**19400**	ug/L	50.0	17.2	1	10/26/12 17:30	10/27/12 12:23	7439-95-4	D9
Potassium, Dissolved	**65900**	ug/L	500	64.1	1	10/26/12 17:30	10/27/12 12:23	7440-09-7	D9
Sodium, Dissolved	**11400**	ug/L	500	40.1	1	10/26/12 17:30	10/27/12 12:23	7440-23-5	D9
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	ND	ug/L	5.0	0.70	5	10/26/12 17:30	10/30/12 13:10	7440-38-2	D3
Cadmium	**10.8**	ug/L	2.5	0.48	5	10/26/12 17:30	10/30/12 13:10	7440-43-9	
Chromium	ND	ug/L	5.0	0.55	5	10/26/12 17:30	10/30/12 13:10	7440-47-3	D3
Cobalt	**1.9J**	ug/L	5.0	0.24	5	10/26/12 17:30	10/30/12 13:10	7440-48-4	
Copper	**20.7**	ug/L	5.0	2.2	5	10/26/12 17:30	10/30/12 13:10	7440-50-8	
Lead	**2.8J**	ug/L	5.0	0.26	5	10/26/12 17:30	10/30/12 13:10	7439-92-1	
Manganese	**1410**	ug/L	5.0	1.2	5	10/26/12 17:30	10/30/12 13:10	7439-96-5	
Nickel	**2.4J**	ug/L	5.0	1.8	5	10/26/12 17:30	10/30/12 13:10	7440-02-0	
Selenium	ND	ug/L	5.0	1.8	5	10/26/12 17:30	10/30/12 13:10	7782-49-2	D3
Zinc	**2100**	ug/L	50.0	8.0	5	10/26/12 17:30	10/30/12 13:10	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic, Dissolved	ND	ug/L	5.0	0.70	5	10/26/12 17:30	10/30/12 13:44	7440-38-2	D3
Cadmium, Dissolved	**9.6**	ug/L	2.5	0.48	5	10/26/12 17:30	10/30/12 13:44	7440-43-9	
Chromium, Dissolved	ND	ug/L	5.0	0.55	5	10/26/12 17:30	10/30/12 13:44	7440-47-3	D3
Cobalt, Dissolved	**2.0J**	ug/L	5.0	0.24	5	10/26/12 17:30	10/30/12 13:44	7440-48-4	
Copper, Dissolved	ND	ug/L	5.0	2.2	5	10/26/12 17:30	10/30/12 13:44	7440-50-8	D3
Lead, Dissolved	ND	ug/L	5.0	0.26	5	10/26/12 17:30	10/30/12 13:44	7439-92-1	D3
Manganese, Dissolved	**1440**	ug/L	5.0	1.2	5	10/26/12 17:30	10/30/12 13:44	7439-96-5	D9,M1
Nickel, Dissolved	**2.6J**	ug/L	5.0	1.8	5	10/26/12 17:30	10/30/12 13:44	7440-02-0	
Selenium, Dissolved	ND	ug/L	5.0	1.8	5	10/26/12 17:30	10/30/12 13:44	7782-49-2	D3
Zinc, Dissolved	**1850**	ug/L	50.0	8.0	5	10/26/12 17:30	10/30/12 13:44	7440-66-6	M1
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**107**	mg/L	20.0	1.2	1		10/29/12 09:40		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1.2	1		10/29/12 09:40		
Alkalinity, Hydroxide (CaCO3)	ND	mg/L	20.0	1.2	1		10/29/12 09:40		
Alkalinity, Total as CaCO3	**107**	mg/L	20.0	1.2	1		10/29/12 09:40		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	5.0	5.0	1		10/29/12 10:34		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Sample: SLSWP11121025 **Lab ID: 60132044001** Collected: 10/25/12 10:35 Received: 10/26/12 10:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**657**	mg/L	50.0	6.0	50		10/28/12 15:17	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

QC Batch: MPRP/20195
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60132044001

METHOD BLANK: 1087838 Matrix: Water
Associated Lab Samples: 60132044001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	ug/L	ND	100	10/27/12 11:57	
Iron	ug/L	ND	50.0	10/27/12 11:57	
Magnesium	ug/L	ND	50.0	10/27/12 11:57	
Potassium	ug/L	ND	500	10/27/12 11:57	
Sodium	ug/L	ND	500	10/27/12 11:57	

LABORATORY CONTROL SAMPLE: 1087839

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	10000	9830	98	85-115	
Iron	ug/L	10000	9980	100	85-115	
Magnesium	ug/L	10000	9240	92	85-115	
Potassium	ug/L	10000	9780	98	85-115	
Sodium	ug/L	10000	9810	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1087840 1087841

Parameter	Units	60132044001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	215000	10000	10000	232000	222000	167	66	70-130	4	9	M1
Iron	ug/L	1540	10000	10000	11400	11200	98	96	70-130	2	10	
Magnesium	ug/L	18400	10000	10000	28000	27200	96	88	70-130	3	9	
Potassium	ug/L	63700	10000	10000	76100	72700	124	90	70-130	4	7	
Sodium	ug/L	11100	10000	10000	21600	21100	105	100	70-130	2	8	

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

QC Batch: MPRP/20194 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Dissolved
Associated Lab Samples: 60132044001

METHOD BLANK: 1087834 Matrix: Water
Associated Lab Samples: 60132044001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium, Dissolved	ug/L	ND	100	10/27/12 11:57	
Iron, Dissolved	ug/L	ND	50.0	10/27/12 11:57	
Magnesium, Dissolved	ug/L	ND	50.0	10/27/12 11:57	
Potassium, Dissolved	ug/L	ND	500	10/27/12 11:57	
Sodium, Dissolved	ug/L	ND	500	10/27/12 11:57	

LABORATORY CONTROL SAMPLE: 1087835

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	ug/L	10000	9830	98	85-115	
Iron, Dissolved	ug/L	10000	9980	100	85-115	
Magnesium, Dissolved	ug/L	10000	9240	92	85-115	
Potassium, Dissolved	ug/L	10000	9780	98	85-115	
Sodium, Dissolved	ug/L	10000	9810	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1087836 1087837

Parameter	Units	60132044001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	ug/L	226000	10000	10000	229000	229000	24	21	70-130	0	9	M1
Iron, Dissolved	ug/L	ND	10000	10000	9990	9960	100	100	70-130	0	10	
Magnesium, Dissolved	ug/L	19400	10000	10000	28600	28200	92	89	70-130	1	9	
Potassium, Dissolved	ug/L	65900	10000	10000	74600	75100	87	92	70-130	1	7	
Sodium, Dissolved	ug/L	11400	10000	10000	21200	21300	98	99	70-130	0	8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

QC Batch: MPRP/20197 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60132044001

METHOD BLANK: 1087848 Matrix: Water
Associated Lab Samples: 60132044001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	1.0	10/30/12 12:50	
Cadmium	ug/L	ND	0.50	10/30/12 12:50	
Chromium	ug/L	ND	1.0	10/30/12 12:50	
Cobalt	ug/L	ND	1.0	10/30/12 12:50	
Copper	ug/L	ND	1.0	10/30/12 12:50	
Lead	ug/L	ND	1.0	10/30/12 12:50	
Manganese	ug/L	0.32J	1.0	10/30/12 12:50	
Nickel	ug/L	ND	1.0	10/30/12 12:50	
Selenium	ug/L	ND	1.0	10/30/12 12:50	
Zinc	ug/L	2.5J	10.0	10/30/12 12:50	

LABORATORY CONTROL SAMPLE: 1087849

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	42.0	105	85-115	
Cadmium	ug/L	40	41.5	104	85-115	
Chromium	ug/L	40	41.0	103	85-115	
Cobalt	ug/L	40	39.8	100	85-115	
Copper	ug/L	40	40.3	101	85-115	
Lead	ug/L	40	39.8	100	85-115	
Manganese	ug/L	40	40.9	102	85-115	
Nickel	ug/L	40	40.9	102	85-115	
Selenium	ug/L	40	43.6	109	85-115	
Zinc	ug/L	100	113	113	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1087850 1087851

Parameter	Units	60132045002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	40	40	40.6	39.8	101	99	70-130	2	20	
Cadmium	ug/L	14.2	40	40	55.6	54.0	104	100	70-130	3	20	
Chromium	ug/L	0.61J	40	40	40.3	40.1	99	99	70-130	1	20	
Cobalt	ug/L	2.5J	40	40	40.9	40.6	96	95	70-130	1	20	
Copper	ug/L	39.2	40	40	76.6	74.1	93	87	70-130	3	20	
Lead	ug/L	2.2J	40	40	41.8	40.7	99	96	70-130	3	20	
Manganese	ug/L	1730	40	40	1760	1730	65	4	70-130	1	20	M1
Nickel	ug/L	3.1J	40	40	42.0	40.6	97	94	70-130	3	20	
Selenium	ug/L	ND	40	40	39.1	40.1	97	100	70-130	2	20	
Zinc	ug/L	2890	100	100	2950	2910	66	22	70-130	2	20	M1

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

QC Batch: MPRP/20196
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET Dissolved
Associated Lab Samples: 60132044001

METHOD BLANK: 1087842 Matrix: Water
Associated Lab Samples: 60132044001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	1.0	10/30/12 12:50	
Cadmium, Dissolved	ug/L	ND	0.50	10/30/12 12:50	
Chromium, Dissolved	ug/L	ND	1.0	10/30/12 12:50	
Cobalt, Dissolved	ug/L	ND	1.0	10/30/12 12:50	
Copper, Dissolved	ug/L	ND	1.0	10/30/12 12:50	
Lead, Dissolved	ug/L	ND	1.0	10/30/12 12:50	
Manganese, Dissolved	ug/L	0.32J	1.0	10/30/12 12:50	
Nickel, Dissolved	ug/L	ND	1.0	10/30/12 12:50	
Selenium, Dissolved	ug/L	ND	1.0	10/30/12 12:50	
Zinc, Dissolved	ug/L	2.5J	10.0	10/30/12 12:50	

LABORATORY CONTROL SAMPLE: 1087843

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	40	42.0	105	85-115	
Cadmium, Dissolved	ug/L	40	41.5	104	85-115	
Chromium, Dissolved	ug/L	40	41.0	103	85-115	
Cobalt, Dissolved	ug/L	40	39.8	100	85-115	
Copper, Dissolved	ug/L	40	40.3	101	85-115	
Lead, Dissolved	ug/L	40	39.8	100	85-115	
Manganese, Dissolved	ug/L	40	40.9	102	85-115	
Nickel, Dissolved	ug/L	40	40.9	102	85-115	
Selenium, Dissolved	ug/L	40	43.6	109	85-115	
Zinc, Dissolved	ug/L	100	113	113	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1087844 1087845

Parameter	Units	60132044001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	ND	40	40	40.1	35.3	100	88	70-130	13	20	
Cadmium, Dissolved	ug/L	9.6	40	40	49.7	42.3	100	82	70-130	16	20	
Chromium, Dissolved	ug/L	ND	40	40	39.2	34.8	97	86	70-130	12	20	
Cobalt, Dissolved	ug/L	2.0J	40	40	39.9	35.0	95	82	70-130	13	20	
Copper, Dissolved	ug/L	ND	40	40	39.3	34.4	94	82	70-130	13	20	
Lead, Dissolved	ug/L	ND	40	40	39.1	33.9	98	85	70-130	14	20	
Manganese, Dissolved	ug/L	1440	40	40	1410	1250	-79	-462	70-130	12	20	M1
Nickel, Dissolved	ug/L	2.6J	40	40	39.4	35.3	92	82	70-130	11	20	
Selenium, Dissolved	ug/L	ND	40	40	38.5	34.0	96	85	70-130	12	20	
Zinc, Dissolved	ug/L	1850	100	100	1870	1660	14	-190	70-130	12	20	M1

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

QC Batch: WET/37940
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Associated Lab Samples: 60132044001

METHOD BLANK: 1089027
Matrix: Water
Associated Lab Samples: 60132044001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	20.0	10/29/12 09:24	
Alkalinity, Hydroxide (CaCO3)	mg/L	ND	20.0	10/29/12 09:24	
Alkalinity, Total as CaCO3	mg/L	ND	20.0	10/29/12 09:24	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	20.0	10/29/12 09:24	

LABORATORY CONTROL SAMPLE: 1089028

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	494	99	90-110	

SAMPLE DUPLICATE: 1089029

Parameter	Units	60131933014 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		24	
Alkalinity, Hydroxide (CaCO3)	mg/L	ND	ND		27	
Alkalinity, Total as CaCO3	mg/L	118	114	4	9	
Alkalinity,Bicarbonate (CaCO3)	mg/L	118	114	4	9	

SAMPLE DUPLICATE: 1089030

Parameter	Units	60132033002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		24	
Alkalinity, Hydroxide (CaCO3)	mg/L	ND	ND		27	
Alkalinity, Total as CaCO3	mg/L	310	317	2	9	
Alkalinity,Bicarbonate (CaCO3)	mg/L	310	317	2	9	

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

QC Batch: WET/37941 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 60132044001

METHOD BLANK: 1089075 Matrix: Water
Associated Lab Samples: 60132044001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	10/29/12 10:32	

SAMPLE DUPLICATE: 1089076

Parameter	Units	60131793001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	57.0	68.0	18	25	

SAMPLE DUPLICATE: 1089077

Parameter	Units	60131790001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	1240	1200	3	25	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

QC Batch: WETA/22230
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60132044001

METHOD BLANK: 1088610 Matrix: Water
Associated Lab Samples: 60132044001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	10/28/12 14:07	

LABORATORY CONTROL SAMPLE: 1088611

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1088612 1088613

Parameter	Units	60131933014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	95.3	50	50	140	140	89	90	61-119	0	10	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
D9	Dissolved result is greater than the total. Data is within laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RICO ARGENTINE MINE SITE
Pace Project No.: 60132044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60132044001	SLSWP11121025	EPA 200.7	MPRP/20195	EPA 200.7	ICP/16526
60132044001	SLSWP11121025	EPA 200.7	MPRP/20194	EPA 200.7	ICP/16525
60132044001	SLSWP11121025	EPA 200.8	MPRP/20197	EPA 200.8	ICPM/1776
60132044001	SLSWP11121025	EPA 200.8	MPRP/20196	EPA 200.8	ICPM/1775
60132044001	SLSWP11121025	SM 2320B	WET/37940		
60132044001	SLSWP11121025	SM 2540D	WET/37941		
60132044001	SLSWP11121025	EPA 300.0	WETA/22230		

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Sample Condition Upon Receipt
ESI Tech Spec Client

WO#:60132044

60132044

Optional
Proj Due Date:
Proj Name:

Client Name: BP Amec   Project #:

Courier: Fed Ex ☐ UPS ☑ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

Tracking #: 1Z733W871005600l   Pace Shipping Label Used? Yes ☑ No ☐

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☑ Zplc

Thermometer Used: T-191 T-194   Type of Ice: Wet Blue None (circle one) ☐ Samples received on ice, cooling process has begun.

Cooler Temperature: 0.6

Temperature should be above freezing to 6°C

Date and Initials of person examining contents: 10/26/12

Chain of Custody present:	☑Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☑Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☑Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☑Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time requested:	☑Yes ☐No ☐N/A	7. Rush
Sufficient volume:	☑Yes ☐No ☐N/A	8.
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	9.
Containers intact:	☑Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☑N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	12.
Sample labels match COC:	☑Yes ☐No ☐N/A	
Includes date/time/ID/analyses Matrix: W		13.
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	14.
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	☐Yes ☑No	Initial when completed / Lot # of added preservative
Trip Blank present:	☐Yes ☐No ☑N/A	
Pace Trip Blank lot # (if purchased):		15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:

Client Notification/ Resolution: Copy COC to Client? Y / N   Field Data Required? Y / N

Person Contacted: ______   Date/Time: ______

Comments/ Resolution:

-No li recd, No Hg -No rush TAT per Linden- mew 10/26/12 See revised COC

Temp Log: Record start and finish times when unpacking cooler, if >20 min, recheck sample temps.	
Start: 1129	Start:
End: 1135	End:
Temp:	Temp:

Project Manager Review: mew for (HMW)   Date: 10/26/12

F-KS-C-004-Rev.1,10October2012

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program Lab.. Chain of Custody Record

Page 1 of 1

BP/ARC Project Name: Rico-Argentine Mine Site | Req Due Date (mm/dd/yy): | Rush TAT: Yes X No

BP/ARC Facility No: | Lab Work Order Number:

Lab Name: Pace Analytical Laboratories, Inc.	BP/ARC Facility Address: Rico-Argentine Mine	Consultant/Contractor: AMEC E&I, Inc.
Lab Address: 9608 Loiret Blvd., Lenexa, KS 66219	City, State, ZIP Code: Rico, Colorado 81332	Consultant/Contractor Project No: SA11161302.200A
Lab PM: Heather Wilson	Lead Regulatory Agency: U.S. EPA Region 8	Address: 10670 White Rock Road, Suite 100, Rancho Cordova, CA
Lab Phone: (913) 563-1407	California Global ID No.: NA	Consultant/Contractor PM: Marc Lombardi
Lab Shipping Acct: UPS # 733W87	Enfos Proposal No: D009D-0024 (WR 251660)	Phone: 916-636-3200
Lab Bottle Order No: NA	Accounting Mode: Provision X OOC-BU ___ OOC-RM ___	Email Report/EDD To: lynda.lombardi@amec.com
Other Info: Wetland Pilot Scale Test	Stage: 4-Execute Activity: Spend	Invoice To: BP/ARC x Contractor ___

BP/ARC EBM: Anthony Brown
EBM Phone: 714-228-6770
EBM Email: anthony.brown@bp.com

Lab No.	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor		Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl		RUSH	Tot Metals-see notes (E200.7/200.8/245.1)	Dis Metals-see notes (E200.7/200.8/245.1)	Dissolved Lithium (E200.7)	Sulfate (E300.0)	Alkalinity-Total,HCO3,CO3,OH (SM2320B)	Total Suspended Solids (SM2540D)	Total Organic Carbon (SM 5310B)	Biological Oxygen Demand (SM 5210B)	MS/MSD	HOLD
	SLSWP11121025	10/25/12	1035		X			5	2	0	3	0		X	X	X	X	X	X	X	3	2	15	

Report Type & QC Level: Standard X; Full Data Package ___

60132044

Comments

Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.

Dissolved metals are field filtered.

Metals are: Ca, Fe, K, Na, Mg (E200.7); Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn (E200.8); Hg (E245.1)

48-hour turnaround on rushed samples

Sampler's Name: Hallie Bevan Simpson	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: AMEC	Hallie Bevan Simpson	10/25/12	1300	E Brackett	10/26	1000
Shipment Method: UPS Ship Date: 10/25/2012						
Shipment Tracking No: 1Z 733W87 22 1005 6001						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: 0.0 °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

BP/ARC LaMP COC Rev. 6 01/01/2009

REVISED

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program Lamp Chain of Custody Record

BP/ARC Project Name: Rico-Argentine Mine Site | Req Due Date (mm/dd/yy): | Rush TAT: Yes X No
BP/ARC Facility No: | Lab Work Order Number:

Lab Name: Pace Analytical Laboratories, Inc.	BP/ARC Facility Address: Rico-Argentine Mine	Consultant/Contractor: AMEC E&I, Inc.
Lab Address: 9608 Loiret Blvd., Lenexa, KS 66219	City, State, ZIP Code: Rico, Colorado 81332	Consultant/Contractor Project No: SA11161302.200A
Lab PM: Heather Wilson	Lead Regulatory Agency: U.S. EPA Region 8	Address: 10670 White Rock Road, Suite 100, Rancho Cordova, CA
Lab Phone: (913) 563-1407	California Global ID No.: NA	Consultant/Contractor PM: Marc Lombardi
Lab Shipping Acct: UPS # 733W87	Enfos Proposal No: D009D-0024 (AR 254660) WR256704	Phone: 916-638-3200
Lab Bottle Order No: NA	Accounting Mode: Provision X OOC-BU OOC-RM	Email Report/EDD To: lynda.lombardi@amec.com
Other Info: Wetland Pilot Scale Test	Stage: 4-Execute Activity: Spend	Invoice To: BP/ARC X Contractor
BP/ARC EBM: Anthony Brown		
EBM Phone: 714-228-6770		
EBM Email: anthony.brown@bp.com		

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	No. Containers / Preservative: Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl	RUSH	Requested Analyses: Tot Metals-see notes (E200.7/200.8/245.1) Diss	Diss Metals-see notes (E200.7/200.8/245.1) Diss	Dissolved Uranium (E200.8) Diss	Sulfide (E376.1)	Alkalinity-Total,HCO3,CO3,OH (SM2320B)	Total Suspended Solids (SM2540D)	Total Organic Carbon (SM 5310B)	Biological Oxygen Demand (SM 5210B)	MS/MSD	HOLD	Report Type & QC Level: Standard X / Full Data Package
	SLSWP111121025	10/25/12	1035		X		5	2	0	3	0	X	X	X	X	X	X	X					Dissolved metals are field filtered.
																							Metals are: Ca, Fe, K, Na, Mg (E200.7);
																							Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn,
																							Mo, Ni, Pb, Sb, Se, Tl, V, Zn (E200.8);
																							Hg (E245.1) Lmf 10/26/12
																							48 hour turnaround on rushed samples
																							Lmf 10/26/12

Lmf 10/26/12 Lmf 10/26/12 Lmf 10/26/12

Sampler's Name: Hallie Blair Simpson	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: AMEC	Hallie Simpson	10/25/12	1300			
Shipment Method: UPS Ship Date: 10/25/2012						
Shipment Tracking No: 1Z 733W87 22 1005 6001						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals in Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

BP/ARC LaMP COC Rev. 6 01/01/2009

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

December 21, 2012

Lynda Lombardi
AMEC Environmental & Infrastructure, Inc.
10670 White Rock Road
Suite 100
Rancho Cordova, CA 95670

RE: Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Dear Lynda Lombardi:
Enclosed are the analytical results for sample(s) received by the laboratory on December 10, 2012. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heather M. Wilson

Heather Wilson

heather.wilson@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
A2LA Certification #: 2456.01
Arkansas Certification #: 12-019-0
Illinois Certification #: 002885
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-12-3
Utah Certification #: KS000212012-2

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(913)599-5665

SAMPLE SUMMARY

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60135088001	P9RD1A121206	Solid	12/06/12 13:45	12/10/12 08:15
60135088002	P9RD1B121206	Solid	12/06/12 14:15	12/10/12 08:15
60135088003	P9RD1C121206	Solid	12/06/12 14:30	12/10/12 08:15
60135088004	P9RD2A121206	Solid	12/06/12 14:00	12/10/12 08:15
60135088005	P9RD2B121206	Solid	12/06/12 14:25	12/10/12 08:15
60135088006	P9RD2C121206	Solid	12/06/12 14:40	12/10/12 08:15
60135088007	P9W1A121206	Solid	12/06/12 15:40	12/10/12 08:15
60135088008	P9W1B121207	Solid	12/06/12 15:50	12/10/12 08:15
60135088009	P9W1C121206	Solid	12/06/12 16:00	12/10/12 08:15
60135088010	P9W2A121206	Solid	12/06/12 16:10	12/10/12 08:15
60135088011	P9W2B121206	Solid	12/06/12 16:15	12/10/12 08:15
60135088012	P9W2C121206	Solid	12/06/12 16:25	12/10/12 08:15
60135088013	P9W3A121206	Solid	12/06/12 16:40	12/10/12 08:15
60135088014	P9W3B121206	Solid	12/06/12 16:35	12/10/12 08:15
60135088015	P9W3C121206	Solid	12/06/12 16:30	12/10/12 08:15
60135088016	P9RD1A121206 LEACHATE	Water	12/06/12 13:45	12/10/12 08:15
60135088017	P9RD1B121206 LEACHATE	Water	12/06/12 14:15	12/10/12 08:15
60135088018	P9RD1C121206 LEACHATE	Water	12/06/12 14:30	12/10/12 08:15
60135088019	P9RD2A121206 LEACHATE	Water	12/06/12 14:00	12/10/12 08:15
60135088020	P9RD2B121206 LEACHATE	Water	12/06/12 14:25	12/10/12 08:15
60135088021	P9RD2C121206 LEACHATE	Water	12/06/12 14:40	12/10/12 08:15
60135088022	P9W1A121206 LEACHATE	Water	12/06/12 15:40	12/10/12 08:15
60135088023	P9W1B121206 LEACHATE	Water	12/06/12 15:50	12/10/12 08:15
60135088024	P9W1C121206 LEACHATE	Water	12/06/12 16:00	12/10/12 08:15
60135088025	P9W2A121206 LEACHATE	Water	12/06/12 16:10	12/10/12 08:15
60135088026	P9W2B121206 LEACHATE	Water	12/06/12 16:15	12/10/12 08:15
60135088027	P9W2C121206 LEACHATE	Water	12/06/12 16:25	12/10/12 08:15
60135088028	P9W3A121206 LEACHATE	Water	12/06/12 16:40	12/10/12 08:15
60135088029	P9W3B121206 LEACHATE	Water	12/06/12 16:35	12/10/12 08:15
60135088030	P9W3C121206 LEACHATE	Water	12/06/12 16:30	12/10/12 08:15

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SAMPLE ANALYTE COUNT

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60135088016	P9RD1A121206 LEACHATE	EPA 6010	JGP	19
60135088017	P9RD1B121206 LEACHATE	EPA 6010	JGP	19
60135088018	P9RD1C121206 LEACHATE	EPA 6010	JGP	19
60135088019	P9RD2A121206 LEACHATE	EPA 6010	JGP	19
60135088020	P9RD2B121206 LEACHATE	EPA 6010	JGP	19
60135088021	P9RD2C121206 LEACHATE	EPA 6010	JGP	19
60135088022	P9W1A121206 LEACHATE	EPA 6010	JGP	19
60135088023	P9W1B121206 LEACHATE	EPA 6010	JGP	19
60135088024	P9W1C121206 LEACHATE	EPA 6010	JGP	19
60135088025	P9W2A121206 LEACHATE	EPA 6010	JGP	19
60135088026	P9W2B121206 LEACHATE	EPA 6010	JGP	19
60135088027	P9W2C121206 LEACHATE	EPA 6010	JGP	19
60135088028	P9W3A121206 LEACHATE	EPA 6010	JGP	19
60135088029	P9W3B121206 LEACHATE	EPA 6010	JGP	19
60135088030	P9W3C121206 LEACHATE	EPA 6010	JGP	19

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PROJECT NARRATIVE

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Method: EPA 6010
Description: 6010 MET ICP
Client: BP AMEC
Date: December 21, 2012

General Information:
15 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20844

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60135088016

D6: The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

- MSD (Lab ID: 1113782)
  - Manganese

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1113781)
  - Manganese
  - Selenium
  - Zinc
- MSD (Lab ID: 1113782)
  - Aluminum
  - Selenium
  - Zinc

QC Batch: MPRP/20842

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60135088030

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1113783)
  - Thallium

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PROJECT NARRATIVE

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Method: EPA 6010
Description: 6010 MET ICP
Client: BP AMEC
Date: December 21, 2012

QC Batch: MPRP/20842

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60135088030

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 1113784)
  - Thallium

Additional Comments:

Analyte Comments:

QC Batch: MPRP/20842

2e: Post Digestion Spike Performed - 72.7% Recovery

- MS (Lab ID: 1113783)
  - Thallium
- MSD (Lab ID: 1113784)
  - Thallium

B: Analyte was detected in the associated method blank.

- P9W1A121206 LEACHATE (Lab ID: 60135088022)
  - Chromium
- P9W1B121206 LEACHATE (Lab ID: 60135088023)
  - Chromium
- P9W1C121206 LEACHATE (Lab ID: 60135088024)
  - Chromium
- P9W2A121206 LEACHATE (Lab ID: 60135088025)
  - Chromium
- P9W2B121206 LEACHATE (Lab ID: 60135088026)
  - Chromium
- P9W2C121206 LEACHATE (Lab ID: 60135088027)
  - Chromium
- P9W3A121206 LEACHATE (Lab ID: 60135088028)
  - Chromium
- P9W3B121206 LEACHATE (Lab ID: 60135088029)
  - Chromium
- P9W3C121206 LEACHATE (Lab ID: 60135088030)
  - Chromium

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- P9W1A121206 LEACHATE (Lab ID: 60135088022)
  - Antimony
  - Selenium
  - Thallium
- P9W1B121206 LEACHATE (Lab ID: 60135088023)
  - Antimony
  - Selenium
  - Thallium
- P9W1C121206 LEACHATE (Lab ID: 60135088024)
  - Antimony

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(913)599-5665

PROJECT NARRATIVE

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Method: EPA 6010
Description: 6010 MET ICP
Client: BP AMEC
Date: December 21, 2012

Analyte Comments:

QC Batch: MPRP/20842

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- P9W1C121206 LEACHATE (Lab ID: 60135088024)
  - Selenium
  - Thallium
- P9W2A121206 LEACHATE (Lab ID: 60135088025)
  - Silver
  - Beryllium
  - Antimony
  - Selenium
  - Thallium
- P9W2B121206 LEACHATE (Lab ID: 60135088026)
  - Antimony
  - Selenium
  - Thallium
- P9W2C121206 LEACHATE (Lab ID: 60135088027)
  - Selenium
  - Thallium
- P9W3A121206 LEACHATE (Lab ID: 60135088028)
  - Antimony
  - Selenium
  - Thallium
- P9W3B121206 LEACHATE (Lab ID: 60135088029)
  - Antimony
  - Selenium
  - Thallium
- P9W3C121206 LEACHATE (Lab ID: 60135088030)
  - Antimony
  - Selenium
  - Thallium

QC Batch: MPRP/20844

1e: Post Digestion Spike Performed - 141% Recovery

- MSD (Lab ID: 1113782)
  - Aluminum

3e: Post Digestion Spike Performed - 95.8% Recovery

- MS (Lab ID: 1113781)
  - Selenium
- MSD (Lab ID: 1113782)
  - Selenium

B: Analyte was detected in the associated method blank.

- P9RD1A121206 LEACHATE (Lab ID: 60135088016)
  - Chromium
  - Molybdenum

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PROJECT NARRATIVE

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Method: EPA 6010
Description: 6010 MET ICP
Client: BP AMEC
Date: December 21, 2012

Analyte Comments:

QC Batch: MPRP/20844

B: Analyte was detected in the associated method blank.

- P9RD1B121206 LEACHATE (Lab ID: 60135088017)
  - Chromium
  - Lead
  - Molybdenum
- P9RD1C121206 LEACHATE (Lab ID: 60135088018)
  - Chromium
  - Lead
  - Molybdenum
- P9RD2A121206 LEACHATE (Lab ID: 60135088019)
  - Chromium
  - Lead
- P9RD2B121206 LEACHATE (Lab ID: 60135088020)
  - Chromium
  - Lead
- P9RD2C121206 LEACHATE (Lab ID: 60135088021)
  - Chromium
  - Lead

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- P9RD1A121206 LEACHATE (Lab ID: 60135088016)
  - Antimony
  - Selenium
  - Thallium
- P9RD1B121206 LEACHATE (Lab ID: 60135088017)
  - Antimony
  - Selenium
  - Thallium
- P9RD1C121206 LEACHATE (Lab ID: 60135088018)
  - Antimony
  - Selenium
  - Thallium
- P9RD2A121206 LEACHATE (Lab ID: 60135088019)
  - Antimony
  - Selenium
  - Thallium
- P9RD2B121206 LEACHATE (Lab ID: 60135088020)
  - Beryllium
  - Antimony
  - Selenium
  - Thallium
- P9RD2C121206 LEACHATE (Lab ID: 60135088021)
  - Silver
  - Antimony

Pace Analytical Services, Inc.
9608 Loiret Blvd.
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(913)599-5665

PROJECT NARRATIVE

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Method: EPA 6010
Description: 6010 MET ICP
Client: BP AMEC
Date: December 21, 2012

Analyte Comments:

QC Batch: MPRP/20844

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- P9RD2C121206 LEACHATE (Lab ID: 60135088021)
  - Selenium
  - Thallium

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

Phone: 913.599.5665
Fax: 913.599.1759

AMEC Leaching Log

Analyst: TDS ☑ AMEC SOP 7.0, Revision 0: Rock Drain Matrix

Date: 12/13/12 ☐ AMEC SOP 8.0, Revision 0: Wetland Organic Matrix

Batch: 20844

Hydroxylamine ID: 6604 Acetic acid ID: 6681

6M HCl ID: NA Filter Paper ID: NA

Theremometer ID: T-175 Correction Factor: 0 °C

Temp. As-Read: 85 °C Corrected Temp. 85 °C

Time On: 13:30 Time Off: 17:30

Sample ID	Weight of beaker	Weight of sample +beaker	Weight of sample	Final Volume
60135088-001	171.80g	371.33g	199.55g	~~475 ml~~ 100ml
60135088-002	182.50g	383.04g	200.55g	~~700 ml~~ 75ml
60135088-003	172.88g	372.99g	200.10g	~~75ml~~ 100ml
60135088-004	175.52g	374.98g	199.47g	100ml
60135088-005	169.60g	369.18g	199.69g	100ml
60135088-006	172.21g	373.04g	200.92g	75ml
MB	169.83g	169.83g	N/A	175ml

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AMEC Leaching Log

Analyst NDJ. ☐ AMEC SOP 7.0, Revision 0: Rock Drain Matrix

Date: 12/17/12 ☑ AMEC SOP 8.0, Revision 0: Wetland Organic Matrix

Batch: 20842

Hydroxylamine ID: NA — Acetic acid ID: NA

6M HCl ID: 16627 — Filter Paper ID: 1441-125

Theremometer ID: T- NA — Correction Factor: NA °C

Temp. As-Read: NA °C — Corrected Temp. NA °C

Time On: 9:00 — Time Off: 10:00

	Sample ID	Weight of beaker	Weight of sample +beaker	Weight of sample	Final Volume
7	60135088-022	178.94g	280.27g	101.34g	~~150mL~~ ~~50mL~~ 200mL
8	60135088-023	185.51g	285.75g	100.25g	~~150mL~~
9	60135088-024	181.90g	291.28g	109.39g	~~150mL~~
10	60135088-25	165.80g	268.53g	102.74g	~~150mL~~
11	60135088-26	171.30g	276.59g	105.30g	~~150mL~~
12	60135088-27	180.96g	287.80g	106.85g	~~150mL~~
13	60135088-28	169.85g	277.22g	107.38g	~~150mL~~
14	60135088-29	169.70g	261.63g	91.95g	~~150mL~~
15	60135088-30	174.11g	285.43g	111.31g	~~150mL~~ ~~150mL~~
	MB	184.08g	184.08g	NA	~~150mL~~ ~~50mL~~

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9RD1A121206 LEACHATE **Lab ID: 60135088016** Collected: 12/06/12 13:45 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**20700**	ug/L	150	50.0	2	12/13/12 10:00	12/20/12 10:58	7429-90-5	M1
Antimony	ND	ug/L	20.0	6.2	2	12/13/12 10:00	12/20/12 10:58	7440-36-0	D3
Arsenic	**36.1**	ug/L	20.0	9.2	2	12/13/12 10:00	12/20/12 10:58	7440-38-2	
Barium	**1780**	ug/L	20.0	1.5	2	12/13/12 10:00	12/20/12 10:58	7440-39-3	
Beryllium	**6.8**	ug/L	2.0	1.0	2	12/13/12 10:00	12/20/12 10:58	7440-41-7	
Cadmium	**114**	ug/L	10.0	0.78	2	12/13/12 10:00	12/20/12 10:58	7440-43-9	
Chromium	**20.4**	ug/L	10.0	1.4	2	12/13/12 10:00	12/20/12 10:58	7440-47-3	B
Cobalt	**94.2**	ug/L	10.0	1.5	2	12/13/12 10:00	12/20/12 10:58	7440-48-4	
Copper	**851**	ug/L	50.0	5.0	5	12/13/12 10:00	12/20/12 13:48	7440-50-8	
Iron	**45100**	ug/L	100	34.4	2	12/13/12 10:00	12/20/12 10:58	7439-89-6	
Lead	**3060**	ug/L	25.0	12.0	5	12/13/12 10:00	12/20/12 13:48	7439-92-1	
Manganese	**50400**	ug/L	25.0	3.0	5	12/13/12 10:00	12/20/12 13:48	7439-96-5	M1
Molybdenum	**23.8J**	ug/L	40.0	3.0	2	12/13/12 10:00	12/20/12 10:58	7439-98-7	B
Nickel	**139**	ug/L	10.0	1.6	2	12/13/12 10:00	12/20/12 10:58	7440-02-0	
Selenium	ND	ug/L	30.0	5.4	2	12/13/12 10:00	12/20/12 10:58	7782-49-2	D3,M1
Silver	**8.9J**	ug/L	14.0	2.6	2	12/13/12 10:00	12/20/12 10:58	7440-22-4	
Thallium	ND	ug/L	40.0	8.6	2	12/13/12 10:00	12/20/12 10:58	7440-28-0	D3
Vanadium	**157**	ug/L	20.0	2.4	2	12/13/12 10:00	12/20/12 10:58	7440-62-2	
Zinc	**28300**	ug/L	100	14.6	2	12/13/12 10:00	12/20/12 10:58	7440-66-6	M1

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9RD1B121206 LEACHATE **Lab ID: 60135088017** Collected: 12/06/12 14:15 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**28700**	ug/L	150	50.0	2	12/13/12 10:00	12/20/12 11:15	7429-90-5	
Antimony	ND	ug/L	20.0	6.2	2	12/13/12 10:00	12/20/12 11:15	7440-36-0	D3
Arsenic	**30.7**	ug/L	20.0	9.2	2	12/13/12 10:00	12/20/12 11:15	7440-38-2	
Barium	**3640**	ug/L	20.0	1.5	2	12/13/12 10:00	12/20/12 11:15	7440-39-3	
Beryllium	**6.8**	ug/L	2.0	1.0	2	12/13/12 10:00	12/20/12 11:15	7440-41-7	
Cadmium	**126**	ug/L	10.0	0.78	2	12/13/12 10:00	12/20/12 11:15	7440-43-9	
Chromium	**30.2J**	ug/L	50.0	6.9	10	12/13/12 10:00	12/20/12 14:12	7440-47-3	B
Cobalt	**232**	ug/L	10.0	1.5	2	12/13/12 10:00	12/20/12 11:15	7440-48-4	
Copper	**648**	ug/L	100	9.9	10	12/13/12 10:00	12/20/12 14:12	7440-50-8	
Iron	**56800**	ug/L	100	34.4	2	12/13/12 10:00	12/20/12 11:15	7439-89-6	
Lead	**426**	ug/L	50.0	24.0	10	12/13/12 10:00	12/20/12 14:12	7439-92-1	B
Manganese	**104000**	ug/L	50.0	6.0	10	12/13/12 10:00	12/20/12 14:12	7439-96-5	
Molybdenum	**29.6J**	ug/L	40.0	3.0	2	12/13/12 10:00	12/20/12 11:15	7439-98-7	B
Nickel	**208**	ug/L	10.0	1.6	2	12/13/12 10:00	12/20/12 11:15	7440-02-0	
Selenium	ND	ug/L	150	27.0	10	12/13/12 10:00	12/20/12 14:12	7782-49-2	D3
Silver	**17.0**	ug/L	14.0	2.6	2	12/13/12 10:00	12/20/12 11:15	7440-22-4	
Thallium	ND	ug/L	200	43.0	10	12/13/12 10:00	12/20/12 14:12	7440-28-0	D3
Vanadium	**259**	ug/L	100	12.0	10	12/13/12 10:00	12/20/12 14:12	7440-62-2	
Zinc	**33200**	ug/L	100	14.6	2	12/13/12 10:00	12/20/12 11:15	7440-66-6	

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9RD1C121206 LEACHATE **Lab ID: 60135088018** Collected: 12/06/12 14:30 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**14000**	ug/L	150	50.0	2	12/13/12 10:00	12/20/12 11:18	7429-90-5	
Antimony	ND	ug/L	20.0	6.2	2	12/13/12 10:00	12/20/12 11:18	7440-36-0	D3
Arsenic	**58.7**	ug/L	20.0	9.2	2	12/13/12 10:00	12/20/12 11:18	7440-38-2	
Barium	**3510**	ug/L	20.0	1.5	2	12/13/12 10:00	12/20/12 11:18	7440-39-3	
Beryllium	**1.3J**	ug/L	2.0	1.0	2	12/13/12 10:00	12/20/12 11:18	7440-41-7	
Cadmium	**138**	ug/L	10.0	0.78	2	12/13/12 10:00	12/20/12 11:18	7440-43-9	
Chromium	**20.9J**	ug/L	25.0	3.4	5	12/13/12 10:00	12/20/12 14:05	7440-47-3	B
Cobalt	**146**	ug/L	10.0	1.5	2	12/13/12 10:00	12/20/12 11:18	7440-48-4	
Copper	**441**	ug/L	50.0	5.0	5	12/13/12 10:00	12/20/12 14:05	7440-50-8	
Iron	**23300**	ug/L	100	34.4	2	12/13/12 10:00	12/20/12 11:18	7439-89-6	
Lead	**302**	ug/L	25.0	12.0	5	12/13/12 10:00	12/20/12 14:05	7439-92-1	B
Manganese	**65800**	ug/L	25.0	3.0	5	12/13/12 10:00	12/20/12 14:05	7439-96-5	
Molybdenum	**19.0J**	ug/L	40.0	3.0	2	12/13/12 10:00	12/20/12 11:18	7439-98-7	B
Nickel	**258**	ug/L	10.0	1.6	2	12/13/12 10:00	12/20/12 11:18	7440-02-0	
Selenium	ND	ug/L	75.0	13.5	5	12/13/12 10:00	12/20/12 14:05	7782-49-2	D3
Silver	**8.4J**	ug/L	14.0	2.6	2	12/13/12 10:00	12/20/12 11:18	7440-22-4	
Thallium	ND	ug/L	100	21.5	5	12/13/12 10:00	12/20/12 14:05	7440-28-0	D3
Vanadium	**272**	ug/L	50.0	6.0	5	12/13/12 10:00	12/20/12 14:05	7440-62-2	
Zinc	**12200**	ug/L	100	14.6	2	12/13/12 10:00	12/20/12 11:18	7440-66-6	

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9RD2A121206 LEACHATE **Lab ID: 60135088019** Collected: 12/06/12 14:00 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**27600**	ug/L	750	250	10	12/13/12 10:00	12/20/12 14:22	7429-90-5	
Antimony	ND	ug/L	20.0	6.2	2	12/13/12 10:00	12/20/12 11:22	7440-36-0	D3
Arsenic	**38.3**	ug/L	20.0	9.2	2	12/13/12 10:00	12/20/12 11:22	7440-38-2	
Barium	**2760**	ug/L	100	7.7	10	12/13/12 10:00	12/20/12 14:22	7440-39-3	
Beryllium	**7.4J**	ug/L	10.0	5.0	10	12/13/12 10:00	12/20/12 14:22	7440-41-7	
Cadmium	**147**	ug/L	10.0	0.78	2	12/13/12 10:00	12/20/12 11:22	7440-43-9	
Chromium	**30.6J**	ug/L	50.0	6.9	10	12/13/12 10:00	12/20/12 14:22	7440-47-3	B
Cobalt	**260**	ug/L	10.0	1.5	2	12/13/12 10:00	12/20/12 11:22	7440-48-4	
Copper	**797**	ug/L	100	9.9	10	12/13/12 10:00	12/20/12 14:22	7440-50-8	
Iron	**59500**	ug/L	500	172	10	12/13/12 10:00	12/20/12 14:22	7439-89-6	
Lead	**579**	ug/L	50.0	24.0	10	12/13/12 10:00	12/20/12 14:22	7439-92-1	B
Manganese	**153000**	ug/L	50.0	6.0	10	12/13/12 10:00	12/20/12 14:22	7439-96-5	
Molybdenum	**48.2**	ug/L	40.0	3.0	2	12/13/12 10:00	12/20/12 11:22	7439-98-7	
Nickel	**263**	ug/L	10.0	1.6	2	12/13/12 10:00	12/20/12 11:22	7440-02-0	
Selenium	ND	ug/L	150	27.0	10	12/13/12 10:00	12/20/12 14:22	7782-49-2	D3
Silver	**22.1**	ug/L	14.0	2.6	2	12/13/12 10:00	12/20/12 11:22	7440-22-4	
Thallium	ND	ug/L	200	43.0	10	12/13/12 10:00	12/20/12 14:22	7440-28-0	D3
Vanadium	**264**	ug/L	100	12.0	10	12/13/12 10:00	12/20/12 14:22	7440-62-2	
Zinc	**38800**	ug/L	100	14.6	2	12/13/12 10:00	12/20/12 11:22	7440-66-6	

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9RD2B121206 LEACHATE **Lab ID: 60135088020** Collected: 12/06/12 14:25 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**11100**	ug/L	150	50.0	2	12/13/12 10:00	12/20/12 11:40	7429-90-5	
Antimony	ND	ug/L	50.0	15.5	5	12/13/12 10:00	12/20/12 14:08	7440-36-0	D3
Arsenic	**71.6**	ug/L	20.0	9.2	2	12/13/12 10:00	12/20/12 11:40	7440-38-2	
Barium	**3000**	ug/L	20.0	1.5	2	12/13/12 10:00	12/20/12 11:40	7440-39-3	
Beryllium	ND	ug/L	2.0	1.0	2	12/13/12 10:00	12/20/12 11:40	7440-41-7	D3
Cadmium	**171**	ug/L	10.0	0.78	2	12/13/12 10:00	12/20/12 11:40	7440-43-9	
Chromium	**18.2J**	ug/L	25.0	3.4	5	12/13/12 10:00	12/20/12 14:08	7440-47-3	B
Cobalt	**85.7**	ug/L	10.0	1.5	2	12/13/12 10:00	12/20/12 11:40	7440-48-4	
Copper	**623**	ug/L	50.0	5.0	5	12/13/12 10:00	12/20/12 14:08	7440-50-8	
Iron	**20800**	ug/L	100	34.4	2	12/13/12 10:00	12/20/12 11:40	7439-89-6	
Lead	**224**	ug/L	25.0	12.0	5	12/13/12 10:00	12/20/12 14:08	7439-92-1	B
Manganese	**61000**	ug/L	25.0	3.0	5	12/13/12 10:00	12/20/12 14:08	7439-96-5	
Molybdenum	**41.8**	ug/L	40.0	3.0	2	12/13/12 10:00	12/20/12 11:40	7439-98-7	
Nickel	**155**	ug/L	10.0	1.6	2	12/13/12 10:00	12/20/12 11:40	7440-02-0	
Selenium	ND	ug/L	75.0	13.5	5	12/13/12 10:00	12/20/12 14:08	7782-49-2	D3
Silver	**8.0J**	ug/L	35.0	6.5	5	12/13/12 10:00	12/20/12 14:08	7440-22-4	
Thallium	ND	ug/L	100	21.5	5	12/13/12 10:00	12/20/12 14:08	7440-28-0	D3
Vanadium	**293**	ug/L	50.0	6.0	5	12/13/12 10:00	12/20/12 14:08	7440-62-2	
Zinc	**24600**	ug/L	100	14.6	2	12/13/12 10:00	12/20/12 11:40	7440-66-6	

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9RD2C121206 LEACHATE **Lab ID: 60135088021** Collected: 12/06/12 14:40 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**15600**	ug/L	150	50.0	2	12/13/12 10:00	12/20/12 11:44	7429-90-5	
Antimony	ND	ug/L	200	62.0	20	12/13/12 10:00	12/20/12 14:26	7440-36-0	D3
Arsenic	**69.4**	ug/L	20.0	9.2	2	12/13/12 10:00	12/20/12 11:44	7440-38-2	
Barium	**4350**	ug/L	20.0	1.5	2	12/13/12 10:00	12/20/12 11:44	7440-39-3	
Beryllium	**2.6**	ug/L	2.0	1.0	2	12/13/12 10:00	12/20/12 11:44	7440-41-7	
Cadmium	**239**	ug/L	10.0	0.78	2	12/13/12 10:00	12/20/12 11:44	7440-43-9	
Chromium	**23.8J**	ug/L	100	13.8	20	12/13/12 10:00	12/20/12 14:26	7440-47-3	B
Cobalt	**312**	ug/L	10.0	1.5	2	12/13/12 10:00	12/20/12 11:44	7440-48-4	
Copper	**1260**	ug/L	200	19.8	20	12/13/12 10:00	12/20/12 14:26	7440-50-8	
Iron	**32700**	ug/L	100	34.4	2	12/13/12 10:00	12/20/12 11:44	7439-89-6	
Lead	**883**	ug/L	100	48.0	20	12/13/12 10:00	12/20/12 14:26	7439-92-1	B
Manganese	**218000**	ug/L	100	12.0	20	12/13/12 10:00	12/20/12 14:26	7439-96-5	
Molybdenum	**100**	ug/L	40.0	3.0	2	12/13/12 10:00	12/20/12 11:44	7439-98-7	
Nickel	**755**	ug/L	10.0	1.6	2	12/13/12 10:00	12/20/12 11:44	7440-02-0	
Selenium	ND	ug/L	300	54.0	20	12/13/12 10:00	12/20/12 14:26	7782-49-2	D3
Silver	ND	ug/L	140	26.0	20	12/13/12 10:00	12/20/12 14:26	7440-22-4	D3
Thallium	ND	ug/L	400	86.0	20	12/13/12 10:00	12/20/12 14:26	7440-28-0	D3
Vanadium	**1050**	ug/L	200	24.0	20	12/13/12 10:00	12/20/12 14:26	7440-62-2	
Zinc	**21200**	ug/L	100	14.6	2	12/13/12 10:00	12/20/12 11:44	7440-66-6	

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9W1A121206 LEACHATE **Lab ID: 60135088022** Collected: 12/06/12 15:40 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**62500**	ug/L	150	50.0	2	12/17/12 16:45	12/18/12 17:30	7429-90-5	
Antimony	ND	ug/L	20.0	6.2	2	12/17/12 16:45	12/18/12 17:30	7440-36-0	D3
Arsenic	**50.0**	ug/L	20.0	9.2	2	12/17/12 16:45	12/18/12 17:30	7440-38-2	
Barium	**3860**	ug/L	100	7.7	10	12/17/12 16:45	12/19/12 10:50	7440-39-3	
Beryllium	**7.5**	ug/L	2.0	1.0	2	12/17/12 16:45	12/18/12 17:30	7440-41-7	
Cadmium	**54.9**	ug/L	50.0	3.9	10	12/17/12 16:45	12/19/12 10:50	7440-43-9	
Chromium	**66.5**	ug/L	50.0	6.9	10	12/17/12 16:45	12/19/12 10:50	7440-47-3	B
Cobalt	**101**	ug/L	50.0	7.6	10	12/17/12 16:45	12/19/12 10:50	7440-48-4	
Copper	**773**	ug/L	100	9.9	10	12/17/12 16:45	12/19/12 10:50	7440-50-8	
Iron	**206000**	ug/L	100	34.4	2	12/17/12 16:45	12/18/12 17:30	7439-89-6	
Lead	**1930**	ug/L	50.0	24.0	10	12/17/12 16:45	12/19/12 10:50	7439-92-1	
Manganese	**18400**	ug/L	50.0	6.0	10	12/17/12 16:45	12/19/12 10:50	7439-96-5	
Molybdenum	**15.5J**	ug/L	40.0	3.0	2	12/17/12 16:45	12/18/12 17:30	7439-98-7	
Nickel	**216**	ug/L	50.0	8.0	10	12/17/12 16:45	12/19/12 10:50	7440-02-0	
Selenium	ND	ug/L	30.0	5.4	2	12/17/12 16:45	12/18/12 17:30	7782-49-2	D3
Silver	**25.6**	ug/L	14.0	2.6	2	12/17/12 16:45	12/18/12 17:30	7440-22-4	
Thallium	ND	ug/L	40.0	8.6	2	12/17/12 16:45	12/18/12 17:30	7440-28-0	D3
Vanadium	**356**	ug/L	100	12.0	10	12/17/12 16:45	12/19/12 10:50	7440-62-2	
Zinc	**7500**	ug/L	500	73.0	10	12/17/12 16:45	12/19/12 10:50	7440-66-6	

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9W1B121206 LEACHATE **Lab ID: 60135088023** Collected: 12/06/12 15:50 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**62400**	ug/L	150	50.0	2	12/17/12 16:45	12/18/12 17:34	7429-90-5	
Antimony	ND	ug/L	20.0	6.2	2	12/17/12 16:45	12/18/12 17:34	7440-36-0	D3
Arsenic	**55.6**	ug/L	20.0	9.2	2	12/17/12 16:45	12/18/12 17:34	7440-38-2	
Barium	**5020**	ug/L	100	7.7	10	12/17/12 16:45	12/19/12 10:53	7440-39-3	
Beryllium	**14.4**	ug/L	2.0	1.0	2	12/17/12 16:45	12/18/12 17:34	7440-41-7	
Cadmium	**239**	ug/L	50.0	3.9	10	12/17/12 16:45	12/19/12 10:53	7440-43-9	
Chromium	**71.3**	ug/L	50.0	6.9	10	12/17/12 16:45	12/19/12 10:53	7440-47-3	B
Cobalt	**172**	ug/L	50.0	7.6	10	12/17/12 16:45	12/19/12 10:53	7440-48-4	
Copper	**1350**	ug/L	100	9.9	10	12/17/12 16:45	12/19/12 10:53	7440-50-8	
Iron	**216000**	ug/L	100	34.4	2	12/17/12 16:45	12/18/12 17:34	7439-89-6	
Lead	**1600**	ug/L	50.0	24.0	10	12/17/12 16:45	12/19/12 10:53	7439-92-1	
Manganese	**40600**	ug/L	50.0	6.0	10	12/17/12 16:45	12/19/12 10:53	7439-96-5	
Molybdenum	**14.9J**	ug/L	40.0	3.0	2	12/17/12 16:45	12/18/12 17:34	7439-98-7	
Nickel	**297**	ug/L	50.0	8.0	10	12/17/12 16:45	12/19/12 10:53	7440-02-0	
Selenium	ND	ug/L	30.0	5.4	2	12/17/12 16:45	12/18/12 17:34	7782-49-2	D3
Silver	**23.7**	ug/L	14.0	2.6	2	12/17/12 16:45	12/18/12 17:34	7440-22-4	
Thallium	ND	ug/L	40.0	8.6	2	12/17/12 16:45	12/18/12 17:34	7440-28-0	D3
Vanadium	**372**	ug/L	100	12.0	10	12/17/12 16:45	12/19/12 10:53	7440-62-2	
Zinc	**36800**	ug/L	500	73.0	10	12/17/12 16:45	12/19/12 10:53	7440-66-6	

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9W1C121206 LEACHATE **Lab ID: 60135088024** Collected: 12/06/12 16:00 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**58900**	ug/L	150	50.0	2	12/17/12 16:45	12/18/12 17:37	7429-90-5	
Antimony	ND	ug/L	20.0	6.2	2	12/17/12 16:45	12/18/12 17:37	7440-36-0	D3
Arsenic	**52.8**	ug/L	20.0	9.2	2	12/17/12 16:45	12/18/12 17:37	7440-38-2	
Barium	**4440**	ug/L	100	7.7	10	12/17/12 16:45	12/19/12 10:56	7440-39-3	
Beryllium	**8.9**	ug/L	2.0	1.0	2	12/17/12 16:45	12/18/12 17:37	7440-41-7	
Cadmium	**77.0**	ug/L	50.0	3.9	10	12/17/12 16:45	12/19/12 10:56	7440-43-9	
Chromium	**81.8**	ug/L	50.0	6.9	10	12/17/12 16:45	12/19/12 10:56	7440-47-3	B
Cobalt	**121**	ug/L	50.0	7.6	10	12/17/12 16:45	12/19/12 10:56	7440-48-4	
Copper	**879**	ug/L	100	9.9	10	12/17/12 16:45	12/19/12 10:56	7440-50-8	
Iron	**197000**	ug/L	100	34.4	2	12/17/12 16:45	12/18/12 17:37	7439-89-6	
Lead	**1720**	ug/L	50.0	24.0	10	12/17/12 16:45	12/19/12 10:56	7439-92-1	
Manganese	**24500**	ug/L	50.0	6.0	10	12/17/12 16:45	12/19/12 10:56	7439-96-5	
Molybdenum	**10.9J**	ug/L	40.0	3.0	2	12/17/12 16:45	12/18/12 17:37	7439-98-7	
Nickel	**241**	ug/L	50.0	8.0	10	12/17/12 16:45	12/19/12 10:56	7440-02-0	
Selenium	ND	ug/L	30.0	5.4	2	12/17/12 16:45	12/18/12 17:37	7782-49-2	D3
Silver	**22.6**	ug/L	14.0	2.6	2	12/17/12 16:45	12/18/12 17:37	7440-22-4	
Thallium	ND	ug/L	40.0	8.6	2	12/17/12 16:45	12/18/12 17:37	7440-28-0	D3
Vanadium	**383**	ug/L	100	12.0	10	12/17/12 16:45	12/19/12 10:56	7440-62-2	
Zinc	**10400**	ug/L	500	73.0	10	12/17/12 16:45	12/19/12 10:56	7440-66-6	

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9W2A121206 LEACHATE Lab ID: **60135088025** Collected: 12/06/12 16:10 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**54700**	ug/L	750	250	10	12/17/12 16:45	12/19/12 11:03	7429-90-5	
Antimony	ND	ug/L	20.0	6.2	2	12/17/12 16:45	12/18/12 17:41	7440-36-0	D3
Arsenic	**69.7**	ug/L	20.0	9.2	2	12/17/12 16:45	12/18/12 17:41	7440-38-2	
Barium	**2810**	ug/L	100	7.7	10	12/17/12 16:45	12/19/12 11:03	7440-39-3	
Beryllium	ND	ug/L	10.0	5.0	10	12/17/12 16:45	12/19/12 11:03	7440-41-7	D3
Cadmium	**44.8J**	ug/L	50.0	3.9	10	12/17/12 16:45	12/19/12 11:03	7440-43-9	
Chromium	**74.8**	ug/L	50.0	6.9	10	12/17/12 16:45	12/19/12 11:03	7440-47-3	B
Cobalt	**83.6**	ug/L	50.0	7.6	10	12/17/12 16:45	12/19/12 11:03	7440-48-4	
Copper	**895**	ug/L	100	9.9	10	12/17/12 16:45	12/19/12 11:03	7440-50-8	
Iron	**150000**	ug/L	100	34.4	2	12/17/12 16:45	12/18/12 17:41	7439-89-6	
Lead	**1370**	ug/L	50.0	24.0	10	12/17/12 16:45	12/19/12 11:03	7439-92-1	
Manganese	**23700**	ug/L	50.0	6.0	10	12/17/12 16:45	12/19/12 11:03	7439-96-5	
Molybdenum	**11.7J**	ug/L	40.0	3.0	2	12/17/12 16:45	12/18/12 17:41	7439-98-7	
Nickel	**158**	ug/L	50.0	8.0	10	12/17/12 16:45	12/19/12 11:03	7440-02-0	
Selenium	ND	ug/L	30.0	5.4	2	12/17/12 16:45	12/18/12 17:41	7782-49-2	D3
Silver	ND	ug/L	70.0	13.0	10	12/17/12 16:45	12/19/12 11:03	7440-22-4	D3
Thallium	ND	ug/L	40.0	8.6	2	12/17/12 16:45	12/18/12 17:41	7440-28-0	D3
Vanadium	**319**	ug/L	100	12.0	10	12/17/12 16:45	12/19/12 11:03	7440-62-2	
Zinc	**4670**	ug/L	500	73.0	10	12/17/12 16:45	12/19/12 11:03	7440-66-6	

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9W2B121206 LEACHATE Lab ID: **60135088026** Collected: 12/06/12 16:15 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**71500**	ug/L	150	50.0	2	12/17/12 16:45	12/18/12 17:44	7429-90-5	
Antimony	ND	ug/L	20.0	6.2	2	12/17/12 16:45	12/18/12 17:44	7440-36-0	D3
Arsenic	**48.3**	ug/L	20.0	9.2	2	12/17/12 16:45	12/18/12 17:44	7440-38-2	
Barium	**5450**	ug/L	100	7.7	10	12/17/12 16:45	12/19/12 11:07	7440-39-3	
Beryllium	**10.6**	ug/L	2.0	1.0	2	12/17/12 16:45	12/18/12 17:44	7440-41-7	
Cadmium	**112**	ug/L	50.0	3.9	10	12/17/12 16:45	12/19/12 11:07	7440-43-9	
Chromium	**78.5**	ug/L	50.0	6.9	10	12/17/12 16:45	12/19/12 11:07	7440-47-3	B
Cobalt	**135**	ug/L	50.0	7.6	10	12/17/12 16:45	12/19/12 11:07	7440-48-4	
Copper	**945**	ug/L	100	9.9	10	12/17/12 16:45	12/19/12 11:07	7440-50-8	
Iron	**223000**	ug/L	100	34.4	2	12/17/12 16:45	12/18/12 17:44	7439-89-6	
Lead	**1660**	ug/L	50.0	24.0	10	12/17/12 16:45	12/19/12 11:07	7439-92-1	
Manganese	**38800**	ug/L	50.0	6.0	10	12/17/12 16:45	12/19/12 11:07	7439-96-5	
Molybdenum	**7.4J**	ug/L	40.0	3.0	2	12/17/12 16:45	12/18/12 17:44	7439-98-7	
Nickel	**274**	ug/L	50.0	8.0	10	12/17/12 16:45	12/19/12 11:07	7440-02-0	
Selenium	ND	ug/L	30.0	5.4	2	12/17/12 16:45	12/18/12 17:44	7782-49-2	D3
Silver	**22.7**	ug/L	14.0	2.6	2	12/17/12 16:45	12/18/12 17:44	7440-22-4	
Thallium	ND	ug/L	40.0	8.6	2	12/17/12 16:45	12/18/12 17:44	7440-28-0	D3
Vanadium	**424**	ug/L	100	12.0	10	12/17/12 16:45	12/19/12 11:07	7440-62-2	
Zinc	**15700**	ug/L	500	73.0	10	12/17/12 16:45	12/19/12 11:07	7440-66-6	

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9W2C121206 LEACHATE **Lab ID: 60135088027** Collected: 12/06/12 16:25 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**54600**	ug/L	150	50.0	2	12/17/12 16:45	12/18/12 17:48	7429-90-5	
Antimony	**8.9J**	ug/L	20.0	6.2	2	12/17/12 16:45	12/18/12 17:48	7440-36-0	
Arsenic	**46.9**	ug/L	20.0	9.2	2	12/17/12 16:45	12/18/12 17:48	7440-38-2	
Barium	**3620**	ug/L	100	7.7	10	12/17/12 16:45	12/19/12 11:10	7440-39-3	
Beryllium	**8.7**	ug/L	2.0	1.0	2	12/17/12 16:45	12/18/12 17:48	7440-41-7	
Cadmium	**99.4**	ug/L	50.0	3.9	10	12/17/12 16:45	12/19/12 11:10	7440-43-9	
Chromium	**66.0**	ug/L	50.0	6.9	10	12/17/12 16:45	12/19/12 11:10	7440-47-3	B
Cobalt	**113**	ug/L	50.0	7.6	10	12/17/12 16:45	12/19/12 11:10	7440-48-4	
Copper	**909**	ug/L	100	9.9	10	12/17/12 16:45	12/19/12 11:10	7440-50-8	
Iron	**170000**	ug/L	100	34.4	2	12/17/12 16:45	12/18/12 17:48	7439-89-6	
Lead	**1300**	ug/L	50.0	24.0	10	12/17/12 16:45	12/19/12 11:10	7439-92-1	
Manganese	**22900**	ug/L	50.0	6.0	10	12/17/12 16:45	12/19/12 11:10	7439-96-5	
Molybdenum	**15.0J**	ug/L	40.0	3.0	2	12/17/12 16:45	12/18/12 17:48	7439-98-7	
Nickel	**212**	ug/L	50.0	8.0	10	12/17/12 16:45	12/19/12 11:10	7440-02-0	
Selenium	ND	ug/L	30.0	5.4	2	12/17/12 16:45	12/18/12 17:48	7782-49-2	D3
Silver	**21.1**	ug/L	14.0	2.6	2	12/17/12 16:45	12/18/12 17:48	7440-22-4	
Thallium	ND	ug/L	40.0	8.6	2	12/17/12 16:45	12/18/12 17:48	7440-28-0	D3
Vanadium	**325**	ug/L	100	12.0	10	12/17/12 16:45	12/19/12 11:10	7440-62-2	
Zinc	**14200**	ug/L	500	73.0	10	12/17/12 16:45	12/19/12 11:10	7440-66-6	

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9W3A121206 LEACHATE **Lab ID: 60135088028** Collected: 12/06/12 16:40 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**46300**	ug/L	150	50.0	2	12/17/12 16:45	12/18/12 17:51	7429-90-5	
Antimony	ND	ug/L	20.0	6.2	2	12/17/12 16:45	12/18/12 17:51	7440-36-0	D3
Arsenic	**33.6**	ug/L	20.0	9.2	2	12/17/12 16:45	12/18/12 17:51	7440-38-2	
Barium	**3070**	ug/L	100	7.7	10	12/17/12 16:45	12/19/12 11:13	7440-39-3	
Beryllium	**5.7**	ug/L	2.0	1.0	2	12/17/12 16:45	12/18/12 17:51	7440-41-7	
Cadmium	**37.9J**	ug/L	50.0	3.9	10	12/17/12 16:45	12/19/12 11:13	7440-43-9	
Chromium	**55.0**	ug/L	50.0	6.9	10	12/17/12 16:45	12/19/12 11:13	7440-47-3	B
Cobalt	**70.0**	ug/L	50.0	7.6	10	12/17/12 16:45	12/19/12 11:13	7440-48-4	
Copper	**548**	ug/L	100	9.9	10	12/17/12 16:45	12/19/12 11:13	7440-50-8	
Iron	**127000**	ug/L	100	34.4	2	12/17/12 16:45	12/18/12 17:51	7439-89-6	
Lead	**894**	ug/L	50.0	24.0	10	12/17/12 16:45	12/19/12 11:13	7439-92-1	
Manganese	**16000**	ug/L	50.0	6.0	10	12/17/12 16:45	12/19/12 11:13	7439-96-5	
Molybdenum	**3.9J**	ug/L	40.0	3.0	2	12/17/12 16:45	12/18/12 17:51	7439-98-7	
Nickel	**168**	ug/L	50.0	8.0	10	12/17/12 16:45	12/19/12 11:13	7440-02-0	
Selenium	ND	ug/L	30.0	5.4	2	12/17/12 16:45	12/18/12 17:51	7782-49-2	D3
Silver	**13.5J**	ug/L	14.0	2.6	2	12/17/12 16:45	12/18/12 17:51	7440-22-4	
Thallium	ND	ug/L	40.0	8.6	2	12/17/12 16:45	12/18/12 17:51	7440-28-0	D3
Vanadium	**259**	ug/L	100	12.0	10	12/17/12 16:45	12/19/12 11:13	7440-62-2	
Zinc	**5350**	ug/L	500	73.0	10	12/17/12 16:45	12/19/12 11:13	7440-66-6	

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9W3B121206 LEACHATE **Lab ID: 60135088029** Collected: 12/06/12 16:35 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**44100**	ug/L	150	50.0	2	12/17/12 16:45	12/18/12 17:55	7429-90-5	
Antimony	ND	ug/L	20.0	6.2	2	12/17/12 16:45	12/18/12 17:55	7440-36-0	D3
Arsenic	**38.0**	ug/L	20.0	9.2	2	12/17/12 16:45	12/18/12 17:55	7440-38-2	
Barium	**2930**	ug/L	100	7.7	10	12/17/12 16:45	12/19/12 11:17	7440-39-3	
Beryllium	**8.7**	ug/L	2.0	1.0	2	12/17/12 16:45	12/18/12 17:55	7440-41-7	
Cadmium	**62.7**	ug/L	50.0	3.9	10	12/17/12 16:45	12/19/12 11:17	7440-43-9	
Chromium	**55.9**	ug/L	50.0	6.9	10	12/17/12 16:45	12/19/12 11:17	7440-47-3	B
Cobalt	**72.8**	ug/L	50.0	7.6	10	12/17/12 16:45	12/19/12 11:17	7440-48-4	
Copper	**673**	ug/L	100	9.9	10	12/17/12 16:45	12/19/12 11:17	7440-50-8	
Iron	**149000**	ug/L	100	34.4	2	12/17/12 16:45	12/18/12 17:55	7439-89-6	
Lead	**994**	ug/L	50.0	24.0	10	12/17/12 16:45	12/19/12 11:17	7439-92-1	
Manganese	**19200**	ug/L	50.0	6.0	10	12/17/12 16:45	12/19/12 11:17	7439-96-5	
Molybdenum	**5.0J**	ug/L	40.0	3.0	2	12/17/12 16:45	12/18/12 17:55	7439-98-7	
Nickel	**164**	ug/L	50.0	8.0	10	12/17/12 16:45	12/19/12 11:17	7440-02-0	
Selenium	ND	ug/L	30.0	5.4	2	12/17/12 16:45	12/18/12 17:55	7782-49-2	D3
Silver	**15.1**	ug/L	14.0	2.6	2	12/17/12 16:45	12/18/12 17:55	7440-22-4	
Thallium	ND	ug/L	40.0	8.6	2	12/17/12 16:45	12/18/12 17:55	7440-28-0	D3
Vanadium	**288**	ug/L	100	12.0	10	12/17/12 16:45	12/19/12 11:17	7440-62-2	
Zinc	**8820**	ug/L	500	73.0	10	12/17/12 16:45	12/19/12 11:17	7440-66-6	

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Sample: P9W3C121206 LEACHATE **Lab ID: 60135088030** Collected: 12/06/12 16:30 Received: 12/10/12 08:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**82800**	ug/L	150	50.0	2	12/17/12 16:45	12/18/12 18:05	7429-90-5	
Antimony	ND	ug/L	20.0	6.2	2	12/17/12 16:45	12/18/12 18:05	7440-36-0	D3
Arsenic	**54.9**	ug/L	20.0	9.2	2	12/17/12 16:45	12/18/12 18:05	7440-38-2	
Barium	**5520**	ug/L	100	7.7	10	12/17/12 16:45	12/19/12 11:27	7440-39-3	
Beryllium	**10.7**	ug/L	2.0	1.0	2	12/17/12 16:45	12/18/12 18:05	7440-41-7	
Cadmium	**92.2**	ug/L	50.0	3.9	10	12/17/12 16:45	12/19/12 11:27	7440-43-9	
Chromium	**100**	ug/L	50.0	6.9	10	12/17/12 16:45	12/19/12 11:27	7440-47-3	B
Cobalt	**151**	ug/L	50.0	7.6	10	12/17/12 16:45	12/19/12 11:27	7440-48-4	
Copper	**1100**	ug/L	100	9.9	10	12/17/12 16:45	12/19/12 11:27	7440-50-8	
Iron	**340000**	ug/L	500	172	10	12/17/12 16:45	12/19/12 11:27	7439-89-6	M6
Lead	**2160**	ug/L	50.0	24.0	10	12/17/12 16:45	12/19/12 11:27	7439-92-1	
Manganese	**32900**	ug/L	50.0	6.0	10	12/17/12 16:45	12/19/12 11:27	7439-96-5	M6
Molybdenum	**6.8J**	ug/L	40.0	3.0	2	12/17/12 16:45	12/18/12 18:05	7439-98-7	
Nickel	**341**	ug/L	50.0	8.0	10	12/17/12 16:45	12/19/12 11:27	7440-02-0	
Selenium	ND	ug/L	30.0	5.4	2	12/17/12 16:45	12/18/12 18:05	7782-49-2	D3
Silver	**29.2**	ug/L	14.0	2.6	2	12/17/12 16:45	12/18/12 18:05	7440-22-4	
Thallium	ND	ug/L	40.0	8.6	2	12/17/12 16:45	12/18/12 18:05	7440-28-0	D3,M1
Vanadium	**501**	ug/L	100	12.0	10	12/17/12 16:45	12/19/12 11:27	7440-62-2	
Zinc	**11500**	ug/L	500	73.0	10	12/17/12 16:45	12/19/12 11:27	7440-66-6	

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QUALITY CONTROL DATA

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

QC Batch: MPRP/20842 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60135088022, 60135088023, 60135088024, 60135088025, 60135088026, 60135088027, 60135088028, 60135088029, 60135088030

METHOD BLANK: 1113740 Matrix: Water
Associated Lab Samples: 60135088022, 60135088023, 60135088024, 60135088025, 60135088026, 60135088027, 60135088028, 60135088029, 60135088030

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	31.6J	75.0	12/18/12 17:23	
Antimony	ug/L	ND	10.0	12/18/12 17:23	
Arsenic	ug/L	ND	10.0	12/18/12 17:23	
Barium	ug/L	2.5J	10.0	12/18/12 17:23	
Beryllium	ug/L	ND	1.0	12/18/12 17:23	
Cadmium	ug/L	ND	5.0	12/18/12 17:23	
Chromium	ug/L	4.1J	5.0	12/19/12 10:46	
Cobalt	ug/L	ND	5.0	12/18/12 17:23	
Copper	ug/L	1.8J	10.0	12/18/12 17:23	
Iron	ug/L	278	50.0	12/18/12 17:23	
Lead	ug/L	7.7	5.0	12/19/12 10:46	
Manganese	ug/L	4.8J	5.0	12/18/12 17:23	
Molybdenum	ug/L	ND	20.0	12/18/12 17:23	
Nickel	ug/L	1.0J	5.0	12/18/12 17:23	
Selenium	ug/L	ND	15.0	12/18/12 17:23	
Silver	ug/L	ND	7.0	12/18/12 17:23	
Thallium	ug/L	ND	20.0	12/18/12 17:23	
Vanadium	ug/L	ND	10.0	12/18/12 17:23	
Zinc	ug/L	24.2J	50.0	12/18/12 17:23	

LABORATORY CONTROL SAMPLE: 1113741

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	10000	10100	101	80-120	
Antimony	ug/L	1000	1030	103	80-120	
Arsenic	ug/L	1000	999	100	80-120	
Barium	ug/L	1000	980	98	80-120	
Beryllium	ug/L	1000	982	98	80-120	
Cadmium	ug/L	1000	998	100	80-120	
Chromium	ug/L	1000	996	100	80-120	
Cobalt	ug/L	1000	1030	103	80-120	
Copper	ug/L	1000	957	96	80-120	
Iron	ug/L	10000	9140	91	80-120	
Lead	ug/L	1000	992	99	80-120	
Manganese	ug/L	1000	973	97	80-120	
Molybdenum	ug/L	1000	1020	102	80-120	
Nickel	ug/L	1000	1030	103	80-120	
Selenium	ug/L	1000	984	98	80-120	
Silver	ug/L	500	480	96	80-120	
Thallium	ug/L	1000	1050	105	80-120	

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QUALITY CONTROL DATA

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

LABORATORY CONTROL SAMPLE: 1113741

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vanadium	ug/L	1000	962	96	80-120	
Zinc	ug/L	1000	972	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1113783 1113784

Parameter	Units	60135088030 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	82800	10000	10000	92600	93000	97	102	75-125	0	20	
Antimony	ug/L	ND	1000	1000	828	811	83	81	75-125	2	20	
Arsenic	ug/L	54.9	1000	1000	885	874	83	82	75-125	1	20	
Barium	ug/L	5520	1000	1000	6590	6540	107	103	75-125	1	20	
Beryllium	ug/L	10.7	1000	1000	799	787	79	78	75-125	1	20	
Cadmium	ug/L	92.2	1000	1000	1030	1000	93	91	75-125	3	20	
Chromium	ug/L	100	1000	1000	990	958	89	86	75-125	3	20	
Cobalt	ug/L	151	1000	1000	1060	1030	90	88	75-125	2	20	
Copper	ug/L	1100	1000	1000	2060	2030	96	93	75-125	1	20	
Iron	ug/L	340000	10000	10000	358000	358000	186	180	75-125	0	20	M6
Lead	ug/L	2160	1000	1000	3070	3070	90	91	75-125	0	20	
Manganese	ug/L	32900	1000	1000	34500	34500	160	152	75-125	0	20	M6
Molybdenum	ug/L	6.8J	1000	1000	770	759	76	75	75-125	1	20	
Nickel	ug/L	341	1000	1000	1260	1240	92	90	75-125	2	20	
Selenium	ug/L	ND	1000	1000	800	797	80	80	75-125	0	20	
Silver	ug/L	29.2	500	500	428	422	80	79	75-125	1	20	
Thallium	ug/L	ND	1000	1000	662	648	66	65	75-125	2	20	2e,M1
Vanadium	ug/L	501	1000	1000	1420	1400	92	90	75-125	2	20	
Zinc	ug/L	11500	1000	1000	12600	12600	113	105	75-125	1	20	

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QUALITY CONTROL DATA

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

QC Batch: MPRP/20844 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60135088016, 60135088017, 60135088018, 60135088019, 60135088020, 60135088021

METHOD BLANK: 1113779 Matrix: Water
Associated Lab Samples: 60135088016, 60135088017, 60135088018, 60135088019, 60135088020, 60135088021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	75.0	12/20/12 13:41	
Antimony	ug/L	ND	10.0	12/20/12 13:41	
Arsenic	ug/L	ND	10.0	12/20/12 13:41	
Barium	ug/L	1.9J	10.0	12/20/12 13:41	
Beryllium	ug/L	ND	1.0	12/20/12 13:41	
Cadmium	ug/L	ND	5.0	12/20/12 13:41	
Chromium	ug/L	10.2	5.0	12/20/12 13:41	
Cobalt	ug/L	ND	5.0	12/20/12 13:41	
Copper	ug/L	1.2J	10.0	12/20/12 13:41	
Iron	ug/L	65.3	50.0	12/20/12 13:41	
Lead	ug/L	13.8	5.0	12/20/12 13:41	
Manganese	ug/L	0.91J	5.0	12/20/12 13:41	
Molybdenum	ug/L	1.7J	20.0	12/20/12 13:41	
Nickel	ug/L	5.2	5.0	12/20/12 13:41	
Selenium	ug/L	ND	15.0	12/20/12 13:41	
Silver	ug/L	ND	7.0	12/20/12 13:41	
Thallium	ug/L	ND	20.0	12/20/12 13:41	
Vanadium	ug/L	ND	10.0	12/20/12 13:41	
Zinc	ug/L	13.9J	50.0	12/20/12 13:41	

LABORATORY CONTROL SAMPLE: 1113780

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	10000	9730	97	80-120	
Antimony	ug/L	1000	951	95	80-120	
Arsenic	ug/L	1000	953	95	80-120	
Barium	ug/L	1000	958	96	80-120	
Beryllium	ug/L	1000	996	100	80-120	
Cadmium	ug/L	1000	961	96	80-120	
Chromium	ug/L	1000	1000	100	80-120	
Cobalt	ug/L	1000	996	100	80-120	
Copper	ug/L	1000	954	95	80-120	
Iron	ug/L	10000	9930	99	80-120	
Lead	ug/L	1000	1020	102	80-120	
Manganese	ug/L	1000	1010	101	80-120	
Molybdenum	ug/L	1000	991	99	80-120	
Nickel	ug/L	1000	1020	102	80-120	
Selenium	ug/L	1000	950	95	80-120	
Silver	ug/L	500	483	97	80-120	
Thallium	ug/L	1000	1010	101	80-120	
Vanadium	ug/L	1000	987	99	80-120	

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QUALITY CONTROL DATA

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

LABORATORY CONTROL SAMPLE: 1113780

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Zinc	ug/L	1000	1030	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1113781 1113782

Parameter	Units	60135088016 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	20700	10000	10000	32700	34000	120	133	75-125	4	20	1e,M1
Antimony	ug/L	ND	1000	1000	802	839	80	84	75-125	4	20	
Arsenic	ug/L	36.1	1000	1000	883	927	85	89	75-125	5	20	
Barium	ug/L	1780	1000	1000	2620	2660	85	88	75-125	1	20	
Beryllium	ug/L	6.8	1000	1000	841	860	83	85	75-125	2	20	
Cadmium	ug/L	114	1000	1000	947	990	83	88	75-125	4	20	
Chromium	ug/L	20.4	1000	1000	844	849	82	83	75-125	1	20	
Cobalt	ug/L	94.2	1000	1000	924	965	83	87	75-125	4	20	
Copper	ug/L	851	1000	1000	1720	1740	87	89	75-125	1	20	
Iron	ug/L	45100	10000	10000	53800	55800	86	107	75-125	4	20	
Lead	ug/L	3060	1000	1000	3840	3970	78	91	75-125	3	20	
Manganese	ug/L	50400	1000	1000	40000	51100	-1039	75	75-125	24	20	D6,M1
Molybdenum	ug/L	23.8J	1000	1000	872	915	85	89	75-125	5	20	
Nickel	ug/L	139	1000	1000	973	1010	83	87	75-125	4	20	
Selenium	ug/L	ND	1000	1000	37.2	44.3	3	4	75-125	17	20	3e,M1
Silver	ug/L	8.9J	500	500	416	419	81	82	75-125	1	20	
Thallium	ug/L	ND	1000	1000	802	843	80	84	75-125	5	20	
Vanadium	ug/L	157	1000	1000	969	976	81	82	75-125	1	20	
Zinc	ug/L	28300	1000	1000	28300	29000	2	74	75-125	3	20	M1

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QUALIFIERS

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1e	Post Digestion Spike Performed - 141% Recovery
2e	Post Digestion Spike Performed - 72.7% Recovery
3e	Post Digestion Spike Performed - 95.8% Recovery
B	Analyte was detected in the associated method blank.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Rico-Argentine Mine Site
Pace Project No.: 60135088

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60135088016	P9RD1A121206 LEACHATE	EPA 3010	MPRP/20844	EPA 6010	ICP/16910
60135088017	P9RD1B121206 LEACHATE	EPA 3010	MPRP/20844	EPA 6010	ICP/16910
60135088018	P9RD1C121206 LEACHATE	EPA 3010	MPRP/20844	EPA 6010	ICP/16910
60135088019	P9RD2A121206 LEACHATE	EPA 3010	MPRP/20844	EPA 6010	ICP/16910
60135088020	P9RD2B121206 LEACHATE	EPA 3010	MPRP/20844	EPA 6010	ICP/16910
60135088021	P9RD2C121206 LEACHATE	EPA 3010	MPRP/20844	EPA 6010	ICP/16910
60135088022	P9W1A121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088023	P9W1B121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088024	P9W1C121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088025	P9W2A121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088026	P9W2B121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088027	P9W2C121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088028	P9W3A121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088029	P9W3B121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088030	P9W3C121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927

Pace Analytical
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Sample Condition Upon Receipt
ESI Tech Spec Client

WO#: 60135088

60135088

Client Name: BP Amec

Optional
Proj Due Date:
Proj Name:

Courier: Fed Ex ☑ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

Tracking #: On Coc Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☑ Zplc

Thermometer Used: T-191 / T-194 Type of Ice: (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 5.3

Date and initials of person examining contents: 12-8-12 BA

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☑Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☑Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☑Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	7.
Sufficient volume:	☑Yes ☐No ☐N/A	8.
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	9.
Containers intact:	☑Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☑N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	12.
Sample labels match COC:	☑Yes ☐No ☐N/A	
Includes date/time/ID/analyses Matrix: SL		13.
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	14.
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	☐Yes ☑No	Initial when completed / Lot # of added preservative
Trip Blank present:	☐Yes ☐No ☑N/A	
Pace Trip Blank lot # (if purchased):		15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☑No ☐N/A	17. List State: CO

Client Notification/ Resolution: Copy COC to Client? Y / (N) Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date 12/10/12

Temp Log Record start and finish times when unpacking cooler, if >20 min, recheck sample temps.	
Start: 1040	Start:
End: 1048	End:
Temp:	Temp:

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: Rico-Argentine Mine Site
BP/ARC Facility No:
Req Due Date (mm/dd/yy):
Rush TAT: Yes ___ No X
Lab Work Order Number:

Lab Name: Pace Analytical Laboratories, Inc.	BP/ARC Facility Address: Rico-Argentine Mine	Consultant/Contractor: AMEC E&I, Inc.
Lab Address: 9608 Loiret Blvd., Lenexa, KS 66219	City, State, ZIP Code: Rico, Colorado 81332	Consultant/Contractor Project No: SA11161302.200A
Lab PM: Heather Wilson	Lead Regulatory Agency: U.S. EPA Region 8	Address: 10670 White Rock Road, Suite 100, Rancho Cordova, CA
Lab Phone: (913) 563-1407	California Global ID No.: NA	Consultant/Contractor PM: Marc Lombardi
Lab Shipping Accnt: UPS # 733W87	Enfos Proposal No: D00ML-0001 (WR 256704)	Phone: 916-636-3200
Lab Bottle Order No: NA	Accounting Mode: Provision X OOC-BU ___ OOC-RM ___	Email Report/EDD To: lynda.lombardi@amec.com
Other Info: Wetland Pilot Scale Test	Stage: 4-Execute Activity: Spend	Invoice To: BP/ARC X Contractor ___
BP/ARC EBM: Anthony Brown		
EBM Phone: 714-228-6770		
EBM Email: anthony.brown@bp.com		

Report Type & QC Level: Standard X; Full Data Package ___

60135088

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Water / Liquid	Air / Vapor		No. Containers / Preservative: Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl			Requested Analyses: Acid Extractable Metals-see notes (SW3020/6010B)	Leachate SOP 7.0 (Rock matrix)	Leachate SOP 8.0 (Org matrix)						MS/MSD	HOLD	Comments (Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.)
	P9RD1a121206	12/6/2012	13:45	X				1	X						X	X				IZPLC			X	001/016	Leachate according to project specific
	P9RD1b121206	12/6/2012	14:15	X				1	X						X	X				↓				002/017	SOPs provided. Following leachate, total
	P9RD1c121206	12/6/2012	14:30	X				1	X						X	X				↓				003/018	metals are: Ag, Al, As, Ba, Be, Cd, Co,
	P9RD2a121206	12/6/2012	14:00	X				1	X						X	X				↓				004/019	Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, Se, Tl,
	P9RD2b121206	12/6/2012	14:25	X				1	X						X	X				↓				005/020	V, Zn
	P9RD2c121206	12/6/2012	14:40	X				1	X						X	X				↓				006/021	

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Hallie Bevan Simpson	Hallie B Simpson / AMEC	12/7/12	13:30	[signature]	12-8-12	815
Sampler's Company: AMEC						
Shipment Method: UPS Ship Date: 12/7/2012						
Shipment Tracking No: 1Z9AE58102943716664						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: (Yes) / No | Temp Blank: (Yes) / No | Cooler Temp on Receipt: 5.3 °F/C | Trip Blank: Yes / (No) | MS/MSD Sample Submitted: (Yes) / No

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: Rico-Argentine Mine Site | **Req Due Date (mm/dd/yy):** | **Rush TAT:** Yes ___ No X

BP/ARC Facility No: | **Lab Work Order Number:**

Lab Name: Pace Analytical Laboratories, Inc.	BP/ARC Facility Address: Rico-Argentine Mine	Consultant/Contractor: AMEC E&I, Inc.
Lab Address: 9608 Loiret Blvd., Lenexa, KS 66219	City, State, ZIP Code: Rico, Colorado 81332	Consultant/Contractor Project No: SA11161302.200A
Lab PM: Heather Wilson	Lead Regulatory Agency: U.S. EPA Region 8	Address: 10670 White Rock Road, Suite 100, Rancho Cordova, CA
Lab Phone: (913) 563-1407	California Global ID No.: NA	Consultant/Contractor PM: Marc Lombardi
Lab Shipping Accnt: UPS # 733W87	Enfos Proposal No: D00ML-0001 (WR 256704)	Phone: 916-636-3200
Lab Bottle Order No: NA	Accounting Mode: Provision X OOC-BU ___ OOC-RM ___	Email Report/EDD To: lynda.lombardi@amec.com
Other Info: Wetland Pilot Scale Test	Stage: 4-Execute Activity: Spend	Invoice To: BP/ARC X Contractor ___
BP/ARC EBM: Anthony Brown		
EBM Phone: 714-228-6770		
EBM Email: anthony.brown@bp.com		

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	Matrix:	No. Containers / Preservative: Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl			Requested Analyses: Acid Extractable Metals-see notes (SW3020/6010B)	Leachate SOP 7.0 (Rock matrix)	Leachate SOP 8.0 (Org matrix)					MS/MSD	HOLD	Report Type & QC Level
	P9W1a121206	12/6/2012	15:40	X				1	X						X		X		12 PLG				03/02	Standard X
	P9W1b121206	12/6/2012	15:50	X				1	X						X		X						08/23	Full Data Package ___
	P9W1c121206	12/6/2012	16:00	X				1	X						X		X						09/24	60B5088
	P9W2a121206	12/6/2012	16:10	X				1	X						X		X						10/25	Comments: Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.
	P9W2b121206	12/6/2012	16:15	X				1	X						X		X						11/26	V, Zn
	P9W2c121206	12/6/2012	16:25	X				1	X						X		X						12/27	
	P9W3a121206	12/6/2012	16:40	X				1	X						X		X						13/30	
	P9W3b121206	12/6/2012	16:35	X				1	X						X		X						14/29	
	P9W3c121206	12/6/2012	16:30	X				1	X						X		X						X 15/30	

Sampler's Name: Hallie Bevan Simpson	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: AMEC	[signature] / AMEC	12/7/12	13:30	[signature]	12/8/12	8:15
Shipment Method: UPS Ship Date: 12/7/2012						
Shipment Tracking No: 1Z9AE5810294371664						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: (Yes) / No | Temp Blank: (Yes) / No | Cooler Temp on Receipt: 5.3 °F/C | Trip Blank: Yes (No) | MS/MSD Sample Submitted: (Yes) / No

Pace Analytical Services, Inc.
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Lenexa, KS 66219
(913)599-5665

January 17, 2013

Lynda Lombardi
AMEC Environmental & Infrastructure, Inc.
10670 White Rock Road
Suite 100
Rancho Cordova, CA 95670

RE: Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Dear Lynda Lombardi:
Enclosed are the analytical results for sample(s) received by the laboratory on January 05, 2013. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heather M. Wilson

Heather Wilson

heather.wilson@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
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CERTIFICATIONS

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
A2LA Certification #: 2456.01
Arkansas Certification #: 12-019-0
Illinois Certification #: 002885
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-12-3
Utah Certification #: KS000212012-2

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SAMPLE SUMMARY

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60136397001	ROCK DRAIN IN 130104	Water	01/04/13 11:25	01/05/13 08:50
60136397002	ROCK DRAIN MP 130104	Water	01/04/13 12:35	01/05/13 08:50
60136397003	WETLAND OUT 130104	Water	01/04/13 13:00	01/05/13 08:50

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SAMPLE ANALYTE COUNT

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60136397001	ROCK DRAIN IN 130104	EPA 200.7	TDS	5
		EPA 200.7	SMW, TDS	5
		EPA 200.8	JGP	18
		EPA 200.8	JGP	18
		SM 5210B	NDL	1
		EPA 300.0	AJM	1
		SM 5310C	SEL	1
60136397002	ROCK DRAIN MP 130104	EPA 200.7	TDS	5
		EPA 200.7	SMW, TDS	5
		EPA 200.8	JGP	18
		EPA 200.8	JGP	18
		EPA 300.0	AJM	1
60136397003	WETLAND OUT 130104	EPA 200.7	TDS	5
		EPA 200.7	SMW, TDS	5
		EPA 200.8	JGP	18
		EPA 200.8	JGP	18
		SM 5210B	NDL	1
		EPA 300.0	AJM	1
		SM 5310C	SEL	1

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PROJECT NARRATIVE

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Method: EPA 200.7
Description: 200.7 Metals, Total
Client: BP AMEC
Date: January 17, 2013

General Information:
3 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/21068

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60136397001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1122744)
  - Calcium
- MSD (Lab ID: 1122745)
  - Calcium

Additional Comments:

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PROJECT NARRATIVE

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Method: EPA 200.7
Description: 200.7 Metals, Dissolved
Client: BP AMEC
Date: January 17, 2013

General Information:
3 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/21067

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60136397001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1122740)
  - Calcium, Dissolved
- MSD (Lab ID: 1122741)
  - Calcium, Dissolved

Additional Comments:

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PROJECT NARRATIVE

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Method: EPA 200.8
Description: 200.8 MET ICPMS
Client: BP AMEC
Date: January 17, 2013

General Information:
3 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/21066

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60136397001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1122736)
  - Manganese
- MSD (Lab ID: 1122737)
  - Manganese
  - Zinc

Additional Comments:

Analyte Comments:

QC Batch: MPRP/21066

B: Analyte was detected in the associated method blank.

- ROCK DRAIN IN 130104 (Lab ID: 60136397001)
  - Silver

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PROJECT NARRATIVE

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Method: EPA 200.8
Description: 200.8 MET ICPMS
Client: BP AMEC
Date: January 17, 2013

Analyte Comments:

QC Batch: MPRP/21066

B: Analyte was detected in the associated method blank.

- ROCK DRAIN MP 130104 (Lab ID: 60136397002)
  - Silver
- WETLAND OUT 130104 (Lab ID: 60136397003)
  - Silver
  - Molybdenum

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PROJECT NARRATIVE

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Method: EPA 200.8
Description: 200.8 MET ICPMS, Dissolved
Client: BP AMEC
Date: January 17, 2013

General Information:
3 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (Including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/21065

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60136397001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 1122733)
  - Manganese, Dissolved

Additional Comments:

Analyte Comments:

QC Batch: MPRP/21065

1e: Dissolved result is greater than the total. Data was confirmed.

- ROCK DRAIN MP 130104 (Lab ID: 60136397002)
  - Manganese, Dissolved

B: Analyte was detected in the associated method blank.

- ROCK DRAIN IN 130104 (Lab ID: 60136397001)
  - Silver, Dissolved

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PROJECT NARRATIVE

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Method: EPA 200.8
Description: 200.8 MET ICPMS, Dissolved
Client: BP AMEC
Date: January 17, 2013

Analyte Comments:

QC Batch: MPRP/21065

B: Analyte was detected in the associated method blank.

- ROCK DRAIN IN 130104 (Lab ID: 60136397001)
  - Thallium, Dissolved
- ROCK DRAIN MP 130104 (Lab ID: 60136397002)
  - Silver, Dissolved
  - Lead, Dissolved
  - Thallium, Dissolved
- WETLAND OUT 130104 (Lab ID: 60136397003)
  - Silver, Dissolved
  - Zinc, Dissolved

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PROJECT NARRATIVE

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Method: SM 5210B
Description: 5210B BOD, 5 day
Client: BP AMEC
Date: January 17, 2013

General Information:
2 samples were analyzed for SM 5210B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with SM 5210B with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Method: EPA 300.0
Description: 300.0 IC Anions 28 Days
Client: BP AMEC
Date: January 17, 2013

General Information:
3 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Method: SM 5310C
Description: 5310C TOC
Client: BP AMEC
Date: January 17, 2013

General Information:
2 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (Including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: WETA/23123

B: Analyte was detected in the associated method blank.
- ROCK DRAIN IN 130104 (Lab ID: 60136397001)
  - Total Organic Carbon

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Sample: ROCK DRAIN IN 130104 **Lab ID: 60136397001** Collected: 01/04/13 11:25 Received: 01/05/13 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**239000**	ug/L	200	71.6	2	01/07/13 10:30	01/15/13 09:33	7440-70-2	M1
Iron	**2760**	ug/L	100	34.4	2	01/07/13 10:30	01/15/13 09:33	7439-89-6	
Magnesium	**18800**	ug/L	100	34.4	2	01/07/13 10:30	01/15/13 09:33	7439-95-4	
Potassium	**21300**	ug/L	1000	128	2	01/07/13 10:30	01/15/13 09:33	7440-09-7	
Sodium	**12700**	ug/L	1000	80.2	2	01/07/13 10:30	01/16/13 12:13	7440-23-5	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**242000**	ug/L	100	35.8	1	01/07/13 10:30	01/16/13 11:58	7440-70-2	D9,M1
Iron, Dissolved	ND	ug/L	50.0	17.2	1	01/07/13 10:30	01/16/13 11:58	7439-89-6	
Magnesium, Dissolved	**20700**	ug/L	100	34.4	2	01/07/13 10:30	01/11/13 11:56	7439-95-4	D9
Potassium, Dissolved	**21600**	ug/L	500	64.1	1	01/07/13 10:30	01/16/13 11:58	7440-09-7	D9
Sodium, Dissolved	**12300**	ug/L	500	40.1	1	01/07/13 10:30	01/16/13 11:58	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum	**270**	ug/L	50.0	5.2	1	01/07/13 10:30	01/15/13 13:12	7429-90-5	
Antimony	**0.28J**	ug/L	1.0	0.035	1	01/07/13 10:30	01/15/13 13:12	7440-36-0	
Arsenic	**0.62J**	ug/L	1.0	0.14	1	01/07/13 10:30	01/15/13 13:12	7440-38-2	
Barium	**22.5**	ug/L	1.0	0.085	1	01/07/13 10:30	01/15/13 13:12	7440-39-3	
Beryllium	**0.30J**	ug/L	0.50	0.066	1	01/07/13 10:30	01/15/13 13:12	7440-41-7	
Cadmium	**12.5**	ug/L	0.50	0.097	1	01/07/13 10:30	01/15/13 13:12	7440-43-9	
Chromium	**1.2**	ug/L	1.0	0.11	1	01/07/13 10:30	01/15/13 13:12	7440-47-3	
Cobalt	**2.5**	ug/L	1.0	0.048	1	01/07/13 10:30	01/15/13 13:12	7440-48-4	
Copper	**46.0**	ug/L	1.0	0.45	1	01/07/13 10:30	01/15/13 13:12	7440-50-8	
Lead	**5.6**	ug/L	1.0	0.051	1	01/07/13 10:30	01/15/13 13:12	7439-92-1	
Manganese	**1820**	ug/L	1.0	0.23	1	01/07/13 10:30	01/15/13 13:12	7439-96-5	M1
Molybdenum	**20.7**	ug/L	1.0	0.16	1	01/07/13 10:30	01/15/13 13:12	7439-98-7	
Nickel	**3.0**	ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 13:12	7440-02-0	
Selenium	ND	ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 13:12	7782-49-2	
Silver	**0.19J**	ug/L	0.50	0.059	1	01/07/13 10:30	01/15/13 13:12	7440-22-4	B
Thallium	**0.12J**	ug/L	1.0	0.022	1	01/07/13 10:30	01/15/13 13:12	7440-28-0	
Vanadium	**0.38J**	ug/L	1.0	0.27	1	01/07/13 10:30	01/15/13 13:12	7440-62-2	
Zinc	**2390**	ug/L	10.0	1.6	1	01/07/13 10:30	01/15/13 13:12	7440-66-6	M1
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**10.7J**	ug/L	50.0	5.2	1	01/07/13 10:30	01/15/13 13:54	7429-90-5	
Antimony, Dissolved	**0.26J**	ug/L	1.0	0.035	1	01/07/13 10:30	01/15/13 13:54	7440-36-0	
Arsenic, Dissolved	ND	ug/L	1.0	0.14	1	01/07/13 10:30	01/15/13 13:54	7440-38-2	
Barium, Dissolved	**19.4**	ug/L	1.0	0.085	1	01/07/13 10:30	01/15/13 13:54	7440-39-3	
Beryllium, Dissolved	ND	ug/L	0.50	0.066	1	01/07/13 10:30	01/15/13 13:54	7440-41-7	
Cadmium, Dissolved	**10.4**	ug/L	0.50	0.097	1	01/07/13 10:30	01/15/13 13:54	7440-43-9	
Chromium, Dissolved	**0.54J**	ug/L	1.0	0.11	1	01/07/13 10:30	01/15/13 13:54	7440-47-3	
Cobalt, Dissolved	**2.3**	ug/L	1.0	0.048	1	01/07/13 10:30	01/15/13 13:54	7440-48-4	
Copper, Dissolved	**2.2**	ug/L	1.0	0.45	1	01/07/13 10:30	01/15/13 13:54	7440-50-8	
Lead, Dissolved	ND	ug/L	1.0	0.051	1	01/07/13 10:30	01/15/13 13:54	7439-92-1	
Manganese, Dissolved	**1710**	ug/L	1.0	0.23	1	01/07/13 10:30	01/15/13 13:54	7439-96-5	M1
Molybdenum, Dissolved	**19.7**	ug/L	1.0	0.16	1	01/07/13 10:30	01/15/13 13:54	7439-98-7	

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Sample: ROCK DRAIN IN 130104 **Lab ID: 60136397001** Collected: 01/04/13 11:25 Received: 01/05/13 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Nickel, Dissolved	**2.6**	ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 13:54	7440-02-0	
Selenium, Dissolved	ND	ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 13:54	7782-49-2	
Silver, Dissolved	**0.18J**	ug/L	0.50	0.059	1	01/07/13 10:30	01/15/13 13:54	7440-22-4	B
Thallium, Dissolved	**0.14J**	ug/L	1.0	0.022	1	01/07/13 10:30	01/15/13 13:54	7440-28-0	B
Vanadium, Dissolved	ND	ug/L	1.0	0.27	1	01/07/13 10:30	01/15/13 13:54	7440-62-2	
Zinc, Dissolved	**1970**	ug/L	10.0	1.6	1	01/07/13 10:30	01/15/13 13:54	7440-66-6	
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	01/05/13 10:09	01/10/13 15:54		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**639**	mg/L	50.0	3.0	50		01/09/13 15:17	14808-79-8	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.81J**	mg/L	1.0	0.092	1		01/08/13 17:55	7440-44-0	B

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Sample: ROCK DRAIN MP 130104 **Lab ID: 60136397002** Collected: 01/04/13 12:35 Received: 01/05/13 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**252000**	ug/L	200	71.6	2	01/07/13 10:30	01/15/13 09:38	7440-70-2	
Iron	**285**	ug/L	100	34.4	2	01/07/13 10:30	01/15/13 09:38	7439-89-6	
Magnesium	**21800**	ug/L	100	34.4	2	01/07/13 10:30	01/15/13 09:38	7439-95-4	
Potassium	**23000**	ug/L	1000	128	2	01/07/13 10:30	01/15/13 09:38	7440-09-7	
Sodium	**13800**	ug/L	1000	80.2	2	01/07/13 10:30	01/16/13 12:19	7440-23-5	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**238000**	ug/L	100	35.8	1	01/07/13 10:30	01/16/13 12:00	7440-70-2	
Iron, Dissolved	**134**	ug/L	50.0	17.2	1	01/07/13 10:30	01/16/13 12:00	7439-89-6	
Magnesium, Dissolved	**22400**	ug/L	100	34.4	2	01/07/13 10:30	01/11/13 12:03	7439-95-4	D9
Potassium, Dissolved	**22600**	ug/L	500	64.1	1	01/07/13 10:30	01/16/13 12:00	7440-09-7	
Sodium, Dissolved	**13400**	ug/L	500	40.1	1	01/07/13 10:30	01/16/13 12:00	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum	**44.8J**	ug/L	50.0	5.2	1	01/07/13 10:30	01/15/13 13:29	7429-90-5	
Antimony	**0.26J**	ug/L	1.0	0.035	1	01/07/13 10:30	01/15/13 13:29	7440-36-0	
Arsenic	**0.59J**	ug/L	1.0	0.14	1	01/07/13 10:30	01/15/13 13:29	7440-38-2	
Barium	**35.2**	ug/L	1.0	0.085	1	01/07/13 10:30	01/15/13 13:29	7440-39-3	
Beryllium	ND	ug/L	0.50	0.066	1	01/07/13 10:30	01/15/13 13:29	7440-41-7	
Cadmium	**1.3**	ug/L	0.50	0.097	1	01/07/13 10:30	01/15/13 13:29	7440-43-9	
Chromium	**0.45J**	ug/L	1.0	0.11	1	01/07/13 10:30	01/15/13 13:29	7440-47-3	
Cobalt	**0.51J**	ug/L	1.0	0.048	1	01/07/13 10:30	01/15/13 13:29	7440-48-4	
Copper	**2.7**	ug/L	1.0	0.45	1	01/07/13 10:30	01/15/13 13:29	7440-50-8	
Lead	**0.54J**	ug/L	1.0	0.051	1	01/07/13 10:30	01/15/13 13:29	7439-92-1	
Manganese	**3230**	ug/L	1.0	0.23	1	01/07/13 10:30	01/15/13 13:29	7439-96-5	
Molybdenum	**15.5**	ug/L	1.0	0.16	1	01/07/13 10:30	01/15/13 13:29	7439-98-7	
Nickel	**2.4**	ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 13:29	7440-02-0	
Selenium	ND	ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 13:29	7782-49-2	
Silver	**0.19J**	ug/L	0.50	0.059	1	01/07/13 10:30	01/15/13 13:29	7440-22-4	B
Thallium	**0.078J**	ug/L	1.0	0.022	1	01/07/13 10:30	01/15/13 13:29	7440-28-0	
Vanadium	**0.87J**	ug/L	1.0	0.27	1	01/07/13 10:30	01/15/13 13:29	7440-62-2	
Zinc	**1230**	ug/L	10.0	1.6	1	01/07/13 10:30	01/15/13 13:29	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**16.2J**	ug/L	50.0	5.2	1	01/07/13 10:30	01/15/13 14:10	7429-90-5	
Antimony, Dissolved	**0.29J**	ug/L	1.0	0.035	1	01/07/13 10:30	01/15/13 14:10	7440-36-0	
Arsenic, Dissolved	**0.46J**	ug/L	1.0	0.14	1	01/07/13 10:30	01/15/13 14:10	7440-38-2	
Barium, Dissolved	**37.3**	ug/L	1.0	0.085	1	01/07/13 10:30	01/15/13 14:10	7440-39-3	D9
Beryllium, Dissolved	ND	ug/L	0.50	0.066	1	01/07/13 10:30	01/15/13 14:10	7440-41-7	
Cadmium, Dissolved	**0.57**	ug/L	0.50	0.097	1	01/07/13 10:30	01/15/13 14:10	7440-43-9	
Chromium, Dissolved	**1.4**	ug/L	1.0	0.11	1	01/07/13 10:30	01/15/13 14:10	7440-47-3	D9
Cobalt, Dissolved	**0.49J**	ug/L	1.0	0.048	1	01/07/13 10:30	01/15/13 14:10	7440-48-4	
Copper, Dissolved	**1.3**	ug/L	1.0	0.45	1	01/07/13 10:30	01/15/13 14:10	7440-50-8	
Lead, Dissolved	**0.20J**	ug/L	1.0	0.051	1	01/07/13 10:30	01/15/13 14:10	7439-92-1	B
Manganese, Dissolved	**3950**	ug/L	1.0	0.23	1	01/07/13 10:30	01/15/13 14:10	7439-96-5	1e
Molybdenum, Dissolved	**15.7**	ug/L	1.0	0.16	1	01/07/13 10:30	01/15/13 14:10	7439-98-7	D9

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Sample: ROCK DRAIN MP 130104 **Lab ID: 60136397002** Collected: 01/04/13 12:35 Received: 01/05/13 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Nickel, Dissolved	**2.5**	ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 14:10	7440-02-0	D9
Selenium, Dissolved	ND	ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 14:10	7782-49-2	
Silver, Dissolved	**0.20J**	ug/L	0.50	0.059	1	01/07/13 10:30	01/15/13 14:10	7440-22-4	B
Thallium, Dissolved	**0.063J**	ug/L	1.0	0.022	1	01/07/13 10:30	01/15/13 14:10	7440-28-0	B
Vanadium, Dissolved	**0.86J**	ug/L	1.0	0.27	1	01/07/13 10:30	01/15/13 14:10	7440-62-2	
Zinc, Dissolved	**1030**	ug/L	10.0	1.6	1	01/07/13 10:30	01/15/13 14:10	7440-66-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**640**	mg/L	50.0	3.0	50		01/09/13 15:35	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Sample: WETLAND OUT 130104 **Lab ID: 60136397003** Collected: 01/04/13 13:00 Received: 01/05/13 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**281000**	ug/L	200	71.6	2	01/07/13 10:30	01/15/13 09:40	7440-70-2	
Iron	**89.9J**	ug/L	100	34.4	2	01/07/13 10:30	01/15/13 09:40	7439-89-6	
Magnesium	**26800**	ug/L	100	34.4	2	01/07/13 10:30	01/15/13 09:40	7439-95-4	
Potassium	**30300**	ug/L	1000	128	2	01/07/13 10:30	01/15/13 09:40	7440-09-7	
Sodium	**13300**	ug/L	1000	80.2	2	01/07/13 10:30	01/16/13 12:20	7440-23-5	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**306000**	ug/L	100	35.8	1	01/07/13 10:30	01/16/13 12:02	7440-70-2	D9
Iron, Dissolved	**17.2J**	ug/L	50.0	17.2	1	01/07/13 10:30	01/16/13 12:02	7439-89-6	
Magnesium, Dissolved	**29000**	ug/L	100	34.4	2	01/07/13 10:30	01/11/13 12:05	7439-95-4	D9
Potassium, Dissolved	**34000**	ug/L	500	64.1	1	01/07/13 10:30	01/16/13 12:02	7440-09-7	D9
Sodium, Dissolved	**14400**	ug/L	500	40.1	1	01/07/13 10:30	01/16/13 12:02	7440-23-5	D9
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum	**76.4**	ug/L	50.0	5.2	1	01/07/13 10:30	01/15/13 13:33	7429-90-5	
Antimony	**0.62J**	ug/L	1.0	0.035	1	01/07/13 10:30	01/15/13 13:33	7440-36-0	
Arsenic	**10.8**	ug/L	1.0	0.14	1	01/07/13 10:30	01/15/13 13:33	7440-38-2	
Barium	**114**	ug/L	1.0	0.085	1	01/07/13 10:30	01/15/13 13:33	7440-39-3	
Beryllium	ND	ug/L	0.50	0.066	1	01/07/13 10:30	01/15/13 13:33	7440-41-7	
Cadmium	**0.81**	ug/L	0.50	0.097	1	01/07/13 10:30	01/15/13 13:33	7440-43-9	
Chromium	**0.71J**	ug/L	1.0	0.11	1	01/07/13 10:30	01/15/13 13:33	7440-47-3	
Cobalt	**0.30J**	ug/L	1.0	0.048	1	01/07/13 10:30	01/15/13 13:33	7440-48-4	
Copper	ND	ug/L	1.0	0.45	1	01/07/13 10:30	01/15/13 13:33	7440-50-8	
Lead	**0.15J**	ug/L	1.0	0.051	1	01/07/13 10:30	01/15/13 13:33	7439-92-1	
Manganese	**4800**	ug/L	1.0	0.23	1	01/07/13 10:30	01/15/13 13:33	7439-96-5	
Molybdenum	**0.21J**	ug/L	1.0	0.16	1	01/07/13 10:30	01/15/13 13:33	7439-98-7	B
Nickel	ND	ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 13:33	7440-02-0	
Selenium	ND	ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 13:33	7782-49-2	
Silver	**0.098J**	ug/L	0.50	0.059	1	01/07/13 10:30	01/15/13 13:33	7440-22-4	B
Thallium	ND	ug/L	1.0	0.022	1	01/07/13 10:30	01/15/13 13:33	7440-28-0	
Vanadium	**2.3**	ug/L	1.0	0.27	1	01/07/13 10:30	01/15/13 13:33	7440-62-2	
Zinc	**271**	ug/L	10.0	1.6	1	01/07/13 10:30	01/15/13 13:33	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**46.6J**	ug/L	50.0	5.2	1	01/07/13 10:30	01/15/13 14:14	7429-90-5	
Antimony, Dissolved	**0.86J**	ug/L	1.0	0.035	1	01/07/13 10:30	01/15/13 14:14	7440-36-0	
Arsenic, Dissolved	**8.2**	ug/L	1.0	0.14	1	01/07/13 10:30	01/15/13 14:14	7440-38-2	
Barium, Dissolved	**117**	ug/L	1.0	0.085	1	01/07/13 10:30	01/15/13 14:14	7440-39-3	D9
Beryllium, Dissolved	ND	ug/L	0.50	0.066	1	01/07/13 10:30	01/15/13 14:14	7440-41-7	
Cadmium, Dissolved	ND	ug/L	0.50	0.097	1	01/07/13 10:30	01/15/13 14:14	7440-43-9	
Chromium, Dissolved	**0.85J**	ug/L	1.0	0.11	1	01/07/13 10:30	01/15/13 14:14	7440-47-3	
Cobalt, Dissolved	**0.10J**	ug/L	1.0	0.048	1	01/07/13 10:30	01/15/13 14:14	7440-48-4	
Copper, Dissolved	**0.55J**	ug/L	1.0	0.45	1	01/07/13 10:30	01/15/13 14:14	7440-50-8	
Lead, Dissolved	ND	ug/L	1.0	0.051	1	01/07/13 10:30	01/15/13 14:14	7439-92-1	
Manganese, Dissolved	**4990**	ug/L	1.0	0.23	1	01/07/13 10:30	01/15/13 14:14	7439-96-5	D9
Molybdenum, Dissolved	**0.17J**	ug/L	1.0	0.16	1	01/07/13 10:30	01/15/13 14:14	7439-98-7	

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ANALYTICAL RESULTS

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Sample: WETLAND OUT 130104 **Lab ID: 60136397003** Collected: 01/04/13 13:00 Received: 01/05/13 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Nickel, Dissolved	ND	ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 14:14	7440-02-0	
Selenium, Dissolved	ND	ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 14:14	7782-49-2	
Silver, Dissolved	**0.082J**	ug/L	0.50	0.059	1	01/07/13 10:30	01/15/13 14:14	7440-22-4	B
Thallium, Dissolved	ND	ug/L	1.0	0.022	1	01/07/13 10:30	01/15/13 14:14	7440-28-0	
Vanadium, Dissolved	**1.6**	ug/L	1.0	0.27	1	01/07/13 10:30	01/15/13 14:14	7440-62-2	
Zinc, Dissolved	**3.5J**	ug/L	10.0	1.6	1	01/07/13 10:30	01/15/13 14:14	7440-66-6	B
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	**112**	mg/L	2.0	2.0	1	01/05/13 10:19	01/10/13 15:57		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**600**	mg/L	50.0	3.0	50		01/09/13 15:52	14808-79-8	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**28.1**	mg/L	1.0	0.092	1		01/08/13 17:27	7440-44-0	

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QUALITY CONTROL DATA

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

QC Batch: MPRP/21068 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60136397001, 60136397002, 60136397003

METHOD BLANK: 1122742 Matrix: Water
Associated Lab Samples: 60136397001, 60136397002, 60136397003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	ug/L	ND	200	01/15/13 09:29	
Iron	ug/L	ND	100	01/15/13 09:29	
Magnesium	ug/L	ND	100	01/15/13 09:29	
Potassium	ug/L	ND	1000	01/15/13 09:29	
Sodium	ug/L	ND	1000	01/16/13 12:06	

LABORATORY CONTROL SAMPLE: 1122743

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	20000	18700	93	85-115	
Iron	ug/L	20000	19100	96	85-115	
Magnesium	ug/L	20000	18000	90	85-115	
Potassium	ug/L	20000	19000	95	85-115	
Sodium	ug/L	20000	19600	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1122744 1122745

Parameter	Units	60136397001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	239000	10000	10000	244000	258000	56	188	70-130	5	9	M1
Iron	ug/L	2760	10000	10000	12100	12800	93	100	70-130	6	10	
Magnesium	ug/L	18800	10000	10000	27100	29800	84	110	70-130	9	9	
Potassium	ug/L	21300	10000	10000	30700	31900	94	106	70-130	4	7	
Sodium	ug/L	12700	10000	10000	23100	23300	105	106	70-130	1	8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

QC Batch: MPRP/21067 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Dissolved
Associated Lab Samples: 60136397001, 60136397002, 60136397003

METHOD BLANK: 1122738 Matrix: Water
Associated Lab Samples: 60136397001, 60136397002, 60136397003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium, Dissolved	ug/L	ND	100	01/16/13 11:51	
Iron, Dissolved	ug/L	ND	50.0	01/16/13 11:51	
Magnesium, Dissolved	ug/L	ND	50.0	01/11/13 11:52	
Potassium, Dissolved	ug/L	ND	500	01/16/13 11:51	
Sodium, Dissolved	ug/L	ND	500	01/16/13 11:51	

LABORATORY CONTROL SAMPLE: 1122739

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	ug/L	10000	10100	101	85-115	
Iron, Dissolved	ug/L	10000	10200	102	85-115	
Magnesium, Dissolved	ug/L	10000	10100	101	85-115	
Potassium, Dissolved	ug/L	10000	9910	99	85-115	
Sodium, Dissolved	ug/L	10000	10400	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1122740 1122741

Parameter	Units	60136397001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	ug/L	242000	10000	10000	255000	249000	133	66	70-130	3	9	M1
Iron, Dissolved	ug/L	ND	10000	10000	10000	9850	100	98	70-130	2	10	
Magnesium, Dissolved	ug/L	20700	10000	10000	29600	30000	89	94	70-130	2	9	
Potassium, Dissolved	ug/L	21600	10000	10000	31700	31500	102	100	70-130	1	7	
Sodium, Dissolved	ug/L	12300	10000	10000	22800	22500	105	103	70-130	1	8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

QC Batch: MPRP/21066 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 60136397001, 60136397002, 60136397003

METHOD BLANK: 1122734 Matrix: Water
Associated Lab Samples: 60136397001, 60136397002, 60136397003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	100	01/15/13 13:04	
Antimony	ug/L	ND	2.0	01/15/13 13:04	
Arsenic	ug/L	ND	2.0	01/15/13 13:04	
Barium	ug/L	0.22J	2.0	01/15/13 13:04	
Beryllium	ug/L	ND	1.0	01/15/13 13:04	
Cadmium	ug/L	ND	1.0	01/15/13 13:04	
Chromium	ug/L	ND	2.0	01/15/13 13:04	
Cobalt	ug/L	ND	2.0	01/15/13 13:04	
Copper	ug/L	ND	2.0	01/15/13 13:04	
Lead	ug/L	ND	2.0	01/15/13 13:04	
Manganese	ug/L	ND	2.0	01/15/13 13:04	
Molybdenum	ug/L	ND	2.0	01/15/13 13:04	
Nickel	ug/L	ND	2.0	01/15/13 13:04	
Selenium	ug/L	ND	2.0	01/15/13 13:04	
Silver	ug/L	0.18J	1.0	01/15/13 13:04	
Thallium	ug/L	ND	2.0	01/15/13 13:04	
Vanadium	ug/L	ND	2.0	01/15/13 13:04	
Zinc	ug/L	ND	20.0	01/15/13 13:04	

LABORATORY CONTROL SAMPLE: 1122735

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	2000	1860	93	85-115	
Antimony	ug/L	80	80.8	101	85-115	
Arsenic	ug/L	80	78.8	98	85-115	
Barium	ug/L	80	77.4	97	85-115	
Beryllium	ug/L	80	76.2	95	85-115	
Cadmium	ug/L	80	78.9	99	85-115	
Chromium	ug/L	80	77.3	97	85-115	
Cobalt	ug/L	80	76.3	95	85-115	
Copper	ug/L	80	77.6	97	85-115	
Lead	ug/L	80	76.3	95	85-115	
Manganese	ug/L	80	78.0	97	85-115	
Molybdenum	ug/L	80	79.4	99	85-115	
Nickel	ug/L	80	78.4	98	85-115	
Selenium	ug/L	80	78.6	98	85-115	
Silver	ug/L	40	37.6	94	85-115	
Thallium	ug/L	80	76.2	95	85-115	
Vanadium	ug/L	80	78.1	98	85-115	
Zinc	ug/L	200	206	103	85-115	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1122736 1122737

Parameter	Units	60136397001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	270	1000	1000	1170	1190	90	92	70-130	1	20	
Antimony	ug/L	0.28J	40	40	40.4	40.3	100	100	70-130	0	20	
Arsenic	ug/L	0.62J	40	40	39.7	39.2	98	96	70-130	1	20	
Barium	ug/L	22.5	40	40	59.7	58.6	93	90	70-130	2	20	
Beryllium	ug/L	0.30J	40	40	35.3	35.6	88	88	70-130	1	20	
Cadmium	ug/L	12.5	40	40	50.8	50.2	96	94	70-130	1	20	
Chromium	ug/L	1.2	40	40	39.3	38.9	95	94	70-130	1	20	
Cobalt	ug/L	2.5	40	40	39.6	38.8	93	91	70-130	2	20	
Copper	ug/L	46.0	40	40	85.8	80.0	99	85	70-130	7	20	
Lead	ug/L	5.6	40	40	45.1	44.2	99	96	70-130	2	20	
Manganese	ug/L	1820	40	40	1880	1840	168	42	70-130	3	20	M1
Molybdenum	ug/L	20.7	40	40	62.2	61.1	104	101	70-130	2	20	
Nickel	ug/L	3.0	40	40	39.6	38.9	92	90	70-130	2	20	
Selenium	ug/L	ND	40	40	36.5	36.4	91	91	70-130	0	20	
Silver	ug/L	0.19J	20	20	18.2	18.0	90	89	70-130	1	20	
Thallium	ug/L	0.12J	40	40	39.0	38.6	97	96	70-130	1	20	
Vanadium	ug/L	0.38J	40	40	39.5	39.0	98	97	70-130	1	20	
Zinc	ug/L	2390	100	100	2500	2460	108	64	70-130	2	20	M1

Pace Analytical Services, Inc.
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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

QC Batch: MPRP/21065 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET Dissolved
Associated Lab Samples: 60136397001, 60136397002, 60136397003

METHOD BLANK: 1122730 Matrix: Water
Associated Lab Samples: 60136397001, 60136397002, 60136397003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ND	100	01/15/13 13:46	
Antimony, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Arsenic, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Barium, Dissolved	ug/L	0.22J	2.0	01/15/13 13:46	
Beryllium, Dissolved	ug/L	ND	1.0	01/15/13 13:46	
Cadmium, Dissolved	ug/L	ND	1.0	01/15/13 13:46	
Chromium, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Cobalt, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Copper, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Lead, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Manganese, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Molybdenum, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Nickel, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Selenium, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Silver, Dissolved	ug/L	0.18J	1.0	01/15/13 13:46	
Thallium, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Vanadium, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Zinc, Dissolved	ug/L	ND	20.0	01/15/13 13:46	

LABORATORY CONTROL SAMPLE: 1122731

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	2000	1950	97	85-115	
Antimony, Dissolved	ug/L	80	80.3	100	85-115	
Arsenic, Dissolved	ug/L	80	76.6	96	85-115	
Barium, Dissolved	ug/L	80	76.2	95	85-115	
Beryllium, Dissolved	ug/L	80	79.8	100	85-115	
Cadmium, Dissolved	ug/L	80	79.6	99	85-115	
Chromium, Dissolved	ug/L	80	77.7	97	85-115	
Cobalt, Dissolved	ug/L	80	75.9	95	85-115	
Copper, Dissolved	ug/L	80	75.9	95	85-115	
Lead, Dissolved	ug/L	80	77.1	96	85-115	
Manganese, Dissolved	ug/L	80	78.9	99	85-115	
Molybdenum, Dissolved	ug/L	80	79.7	100	85-115	
Nickel, Dissolved	ug/L	80	76.2	95	85-115	
Selenium, Dissolved	ug/L	80	79.0	99	85-115	
Silver, Dissolved	ug/L	40	37.5	94	85-115	
Thallium, Dissolved	ug/L	80	76.1	95	85-115	
Vanadium, Dissolved	ug/L	80	78.0	97	85-115	
Zinc, Dissolved	ug/L	200	208	104	85-115	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1122732 1122733

Parameter	Units	60136397001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	10.7J	1000	1000	939	934	93	92	70-130	1	20	
Antimony, Dissolved	ug/L	0.26J	40	40	40.1	39.9	100	99	70-130	1	20	
Arsenic, Dissolved	ug/L	ND	40	40	38.4	38.5	96	96	70-130	0	20	
Barium, Dissolved	ug/L	19.4	40	40	56.6	57.4	93	95	70-130	1	20	
Beryllium, Dissolved	ug/L	ND	40	40	35.8	35.1	89	88	70-130	2	20	
Cadmium, Dissolved	ug/L	10.4	40	40	48.8	48.8	96	96	70-130	0	20	
Chromium, Dissolved	ug/L	0.54J	40	40	37.8	38.2	93	94	70-130	1	20	
Cobalt, Dissolved	ug/L	2.3	40	40	38.4	38.4	90	90	70-130	0	20	
Copper, Dissolved	ug/L	2.2	40	40	37.3	37.4	88	88	70-130	0	20	
Lead, Dissolved	ug/L	ND	40	40	38.6	38.9	96	97	70-130	1	20	
Manganese, Dissolved	ug/L	1710	40	40	1750	1770	102	145	70-130	1	20	M1
Molybdenum, Dissolved	ug/L	19.7	40	40	60.8	61.3	103	104	70-130	1	20	
Nickel, Dissolved	ug/L	2.6	40	40	38.3	38.7	89	90	70-130	1	20	
Selenium, Dissolved	ug/L	ND	40	40	37.2	36.6	93	91	70-130	2	20	
Silver, Dissolved	ug/L	0.18J	20	20	17.9	18.1	89	89	70-130	1	20	
Thallium, Dissolved	ug/L	0.14J	40	40	38.5	39.1	96	97	70-130	2	20	
Vanadium, Dissolved	ug/L	ND	40	40	38.5	38.5	96	96	70-130	0	20	
Zinc, Dissolved	ug/L	1970	100	100	2080	2080	106	108	70-130	0	20	

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

QC Batch: WET/39130 Analysis Method: SM 5210B
QC Batch Method: SM 5210B Analysis Description: 5210B BOD, 5 day
Associated Lab Samples: 60136397001, 60136397003

METHOD BLANK: 1122361 Matrix: Water
Associated Lab Samples: 60136397001, 60136397003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
BOD, 5 day	mg/L	ND	2.0	01/10/13 14:57	

LABORATORY CONTROL SAMPLE: 1122362

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
BOD, 5 day	mg/L	198	176	89	85-115	

SAMPLE DUPLICATE: 1122363

Parameter	Units	60136275001 Result	Dup Result	RPD	Max RPD	Qualifiers
BOD, 5 day	mg/L	111	108	2	17	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

QC Batch: WETA/23119 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60136397001, 60136397002, 60136397003

METHOD BLANK: 1123005 Matrix: Water
Associated Lab Samples: 60136397001, 60136397002, 60136397003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	01/09/13 12:31	

LABORATORY CONTROL SAMPLE: 1123006

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	4.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1123007 1123008

Parameter	Units	60136397003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	600	250	250	789	845	76	98	61-119	7	10	

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QUALITY CONTROL DATA

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

QC Batch: WETA/23123 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60136397001, 60136397003

METHOD BLANK: 1123022 Matrix: Water
Associated Lab Samples: 60136397001, 60136397003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	0.45J	1.0	01/08/13 16:30	

LABORATORY CONTROL SAMPLE: 1123023

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.4	109	80-120	

MATRIX SPIKE SAMPLE: 1123024

Parameter	Units	60136433001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	ND	5	6.0	112	80-120	

SAMPLE DUPLICATE: 1123025

Parameter	Units	60136397001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	0.81J	1.8		25	

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QUALIFIERS

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1e	Dissolved result is greater than the total. Data was confirmed.
B	Analyte was detected in the associated method blank.
D9	Dissolved result is greater than the total. Data is within laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Rico-Argentine Mine Site
Pace Project No.: 60136397

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60136397001	ROCK DRAIN IN 130104	EPA 200.7	MPRP/21068	EPA 200.7	ICP/17039
60136397002	ROCK DRAIN MP 130104	EPA 200.7	MPRP/21068	EPA 200.7	ICP/17039
60136397003	WETLAND OUT 130104	EPA 200.7	MPRP/21068	EPA 200.7	ICP/17039
60136397001	ROCK DRAIN IN 130104	EPA 200.7	MPRP/21067	EPA 200.7	ICP/17038
60136397002	ROCK DRAIN MP 130104	EPA 200.7	MPRP/21067	EPA 200.7	ICP/17038
60136397003	WETLAND OUT 130104	EPA 200.7	MPRP/21067	EPA 200.7	ICP/17038
60136397001	ROCK DRAIN IN 130104	EPA 200.8	MPRP/21066	EPA 200.8	ICPM/1955
60136397002	ROCK DRAIN MP 130104	EPA 200.8	MPRP/21066	EPA 200.8	ICPM/1955
60136397003	WETLAND OUT 130104	EPA 200.8	MPRP/21066	EPA 200.8	ICPM/1955
60136397001	ROCK DRAIN IN 130104	EPA 200.8	MPRP/21065	EPA 200.8	ICPM/1954
60136397002	ROCK DRAIN MP 130104	EPA 200.8	MPRP/21065	EPA 200.8	ICPM/1954
60136397003	WETLAND OUT 130104	EPA 200.8	MPRP/21065	EPA 200.8	ICPM/1954
60136397001	ROCK DRAIN IN 130104	SM 5210B	WET/39130	SM 5210B	WET/39207
60136397003	WETLAND OUT 130104	SM 5210B	WET/39130	SM 5210B	WET/39207
60136397001	ROCK DRAIN IN 130104	EPA 300.0	WETA/23119		
60136397002	ROCK DRAIN MP 130104	EPA 300.0	WETA/23119		
60136397003	WETLAND OUT 130104	EPA 300.0	WETA/23119		
60136397001	ROCK DRAIN IN 130104	SM 5310C	WETA/23123		
60136397003	WETLAND OUT 130104	SM 5310C	WETA/23123		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt
ESI Tech Spec Client

WO#: 60136397

60136397

Client Name: BP Amec

Courier: Fed Ex ☐ UPS ☑ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

Tracking #: 1Z 733 W87 22 1005 7484 Pace Shipping Label Used? Yes ☑ No ☐ BA 1/5/13

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☑ ZPLC

Thermometer Used: T-193 / T-194 Type of Ice: (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 2.3

Temperature should be above freezing to 6°C

Optional
Proj Due Date:
Proj Name:

Date and initials of person examining contents: 1/5/13 BA

Chain of Custody present:	☑Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☑Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☑Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☑Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	6. BOD
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	7.
Sufficient volume:	☑Yes ☐No ☐N/A	8.
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	9.
Containers intact:	☑Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☑N/A	11.
Filtered volume received for dissolved tests?	☑Yes ☐No ☐N/A	12.
Sample labels match COC: Includes date/time/ID/analyses Matrix: WT	☑Yes ☐No ☐N/A	13.
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	14.
Exceptions: VOA, coliform, (TOC) O&G, WI-DRO (water), Phenolics	☑Yes ☐No	Initial when completed / Lot # of added preservative
Trip Blank present: Pace Trip Blank lot # (if purchased):	☐Yes ☐No ☑N/A	15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:

Client Notification/ Resolution: Copy COC to Client? Y / (N) Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AMW Date: 1/7/13

Temp Log: Record start and finish times when unpacking cooler, if >20 min, recheck sample temps.

Start:	Start:
End:	End:
Temp:	Temp:

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program Lab Chain of Custody Record

Page 1 of 1

BP/ARC Project Name: Rico-Argentine Mine Site
Req Due Date (mm/dd/yy): _____ Rush TAT: Yes ___ No X
BP/ARC Facility No: _____
Lab Work Order Number: _____

Lab Name:	Pace Analytical Laboratories, Inc.	BP/ARC Facility Address:	Rico-Argentine Mine	Consultant/Contractor:	AMEC E&I, Inc.
Lab Address:	9608 Loiret Blvd., Lenexa, KS 66219	City, State, ZIP Code:	Rico, Colorado 81332	Consultant/Contractor Project No:	SA11161302.200A
Lab PM:	Heather Wilson	Lead Regulatory Agency:	U.S. EPA Region 8	Address:	10670 White Rock Road, Suite 100, Rancho Cordova, CA
Lab Phone:	(913) 563-1407	California Global ID No.:	NA	Consultant/Contractor PM:	Marc Lombardi
Lab Shipping Accnt:	UPS # 733W87	Enfos Proposal No:	D00ML-0001 (WR 256704)	Phone:	916-636-3200
Lab Bottle Order No:	NA	Accounting Mode:	Provision X OOC-BU ___ OOC-RM ___	Email Report/EDD To:	lynda.lombardi@amec.com
Other Info:	Wetland Pilot Scale Test	Stage:	4-Execute Activity: Spend	Invoice To:	BP/ARC x Contractor ___

BP/ARC EBM: Anthony Brown
EBM Phone: 714-228-6770
EBM Email: anthony.brown@bp.com

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	No. Containers / Preservative: Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl	Requested Analyses: Tot Metals-see notes (E200.7/200.8)	Dis Metals-see notes (E200.7/200.8)	Sulfate (E300.0)	TOC (SM5310B)	BOD (SM5210B)	MS/MSD	HOLD
	ROCK DRAIN IN 130104	1/3	1125		X		5	2	0	2	1	X	X	X	X	X		
	ROCK DRAIN MP 130104	↓	1235		X		3	1	0	2	0	X	X	X				
	WETLAND OUT 130104	↓	1300		X		5	2	0	2	1	X	X	X	X	X	↓	

Report Type & QC Level: Standard X; Full Data Package ___

6013697

Comments

Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.

001 Dissolved metals are field filtered.
002
003 Metals are: Ca, Fe, K, Na, Mg (E200.7); Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn (E200.8)

1/4/13

Sampler's Name:	ABBY CALIEC	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company:	AMEC	[illegible] / AMEC	1/4/13	1400	[illegible]	1/5/13	850
Shipment Method:	UPS	Ship Date: 1/4/13					
Shipment Tracking No:	1Z733W87 22005 7484						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: 2-3 °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

BP/ARC LaMP COC Rev. 6 01/01/2009

Page 2 of 2

APPENDIX F

Baseline Matrix Sampling Technical Memorandum
December 7, 2012

Technical Memorandum

To: Spencer Archer, AMEC
Marc Lombardi, AMEC

Project: SA11161302.200A

From: Hallie Bevan Simpson, AMEC

cc: Andre Sobolewski, AMEC
Lynda Lombardi, AMEC
Ron Borrego, AMEC
Abby Cazier, AMEC

Tel: (720) 284-4043

Date: December 7, 2012

Subject: Baseline Matrix Sampling
Constructed Wetland Pilot Scale Test
Rico-Argentine Mine Site – Rico Tunnels, Operable Unit OU01
Dolores County, Colorado

This technical memorandum describes the baseline matrix sampling conducted for the Constructed Wetland Pilot Scale Test at the Rico-Argentine Mine Site (site). Compliant with the *St. Louis Tunnel Discharge Constructed Wetland Pilot Scale Test Work Plan* (Work Plan) and associated Sampling and Analysis Plan (SAP), baseline matrix sampling was completed on Thursday, December 6, 2012. Matrix samples were collected from the rock drain and wetland cells and submitted for laboratory analysis of total metals to Pace Analytical Laboratories ("Pace") in Lenexa, Kansas. Sampling coincided with wetland liner repair and re-plumbing activities, for which power and water to the rock drain and wetland were shut off and water levels in the rock drain and wetland were lowered.

SAMPLE PREPARATION AND METHODS

Matrix sampling was conducted in accordance with the site Task Specific Health and Safety Plan (TSHASP) and the following site-specific Standard Operating Procedures (SOPs):

- SOP 1 – Field Documentation and Sample Handling
- SOP 2 – Sample Collection Techniques and Data Collection Strategies
- SOP 4 – Equipment Decontamination
- SOP 7 – Rock Drain Matrix Field Sampling and Laboratory Procedures
- SOP 8 – Wetland Organic Matrix Field Sampling and Laboratory Procedures

Sample locations were evenly spaced and flagged along transects. Samples were collected using a metal scoop and placed on a decontaminated acrylic sheet. Photo documentation was completed for each sample, and samples were then transferred into sealable plastic bags labeled with the sample ID. The acrylic sheet was sprayed with deionized water in a fine-point squirt bottle to flush any remaining sample material into the sample bag. Sample bags were sealed and placed in tertiary bags in a cooler. The acrylic sheet and metal scoop were decontaminated, sample locations were backfilled with surrounding matrix material, and sampling was continued at the next location.

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The following naming structure was used to generate sample IDs:

- "P9" – referring to Pond 9 as the primary site location;
- "RD" or "W" – referring to the rock drain or wetland cell;
- "1", "2", or "3" – the transect number; transects ran north-south, with transect 1 being the western-most transect;
- "a", "b", or "c" – the point along the transect; the northernmost point along each transect was "a" and the southernmost was "c" or "d";
- "121206" – the sample collection date, December 6, 2012;
- Examples: *P9RD1a121206* and *P9W3c121206*.

ROCK DRAIN SAMPLING

Six samples were collected from the rock drain along two transects. Sample locations were spaced approximately 4.5 feet from the west and east walls and from eachother. Sample locations were spaced approximately 7.5 feet from the north and south walls and from eachother. Approximately 500 grams of rock was collected from a depth of approximately six inches below the rock surface at each location.

Photo documentation of rock drain samples is included in Attachment A. The following are the sample locations and corresponding matrix samples submitted to Pace for laboratory analysis.

Sample Location Name	Laboratory Sample ID
RD1a	P9RD1a121206
RD1b	P9RD1b121206
RD1c	P9RD1c121206
RD2a	P9RD2a121206
RD2b	P9RD2b121206
RD2c	P9RD2c121206

WETLAND SAMPLING

Sample locations were identified along three transects within the wetland cell. A total of 12 sample locations were spaced approximately 3.25 feet from the west and east walls and from eachother. Sample locations were spaced approximately 14 feet from the north and south walls and from eachother. Approximately 500 grams of wetland matrix was collected from a depth of approximately six inches below the bottom of the mulch layer at nine of the locations. At the three southern-most "d" locations, near the wetland outlet, the matrix material was frozen and could not be sampled. A strong organic odor was detected at all of the wetland cell sampling locations, with the "a" locations exibiting the strongest odor and the "c" locations exhibiting a somewhat less strong odor.

Photo documentation of wetland samples is included in Attachment B. The following are the sample locations and corresponding matrix samples submitted to Pace for laboratory analysis.

Sample Location Name	Laboratory Sample ID
• W1a	• P9W1a121206
• W1b	• P9W1b121206
• W1c	• P9W1c121206
• W1d	• *no sample collected*
• W2a	• P9W2a121206
• W2b	• P9W2b121206
• W2c	• P9W2c121206
• W2d	• *no sample collected*
• W3a	• P9W3a121206
• W3b	• P9W3b121206
• W3c	• P9W3c121206
• W3d	• *no sample collected*

POST-IMPLEMENTATION SAMPLING

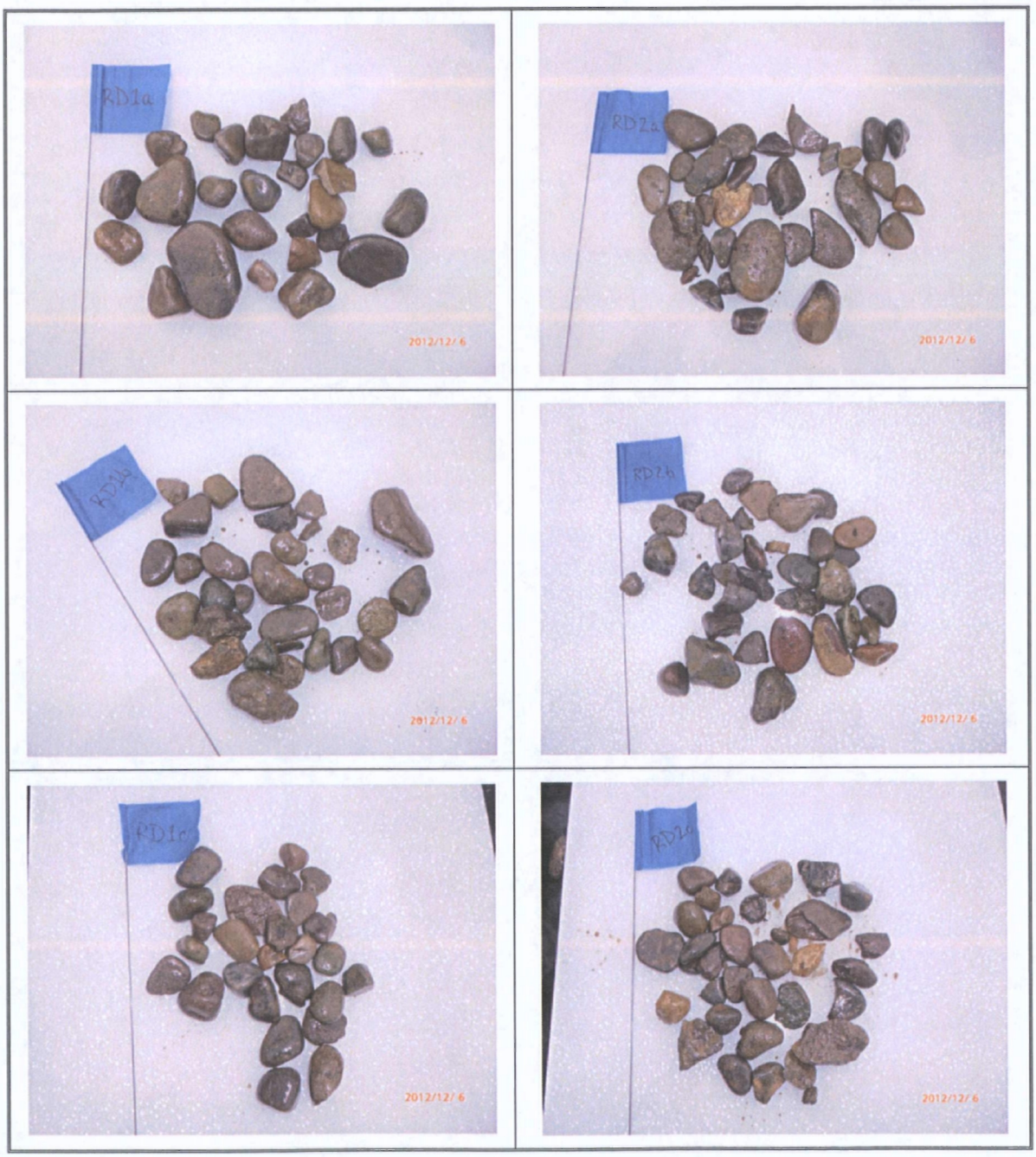
Post-implementation matrix samples are anticipated to be collected from the rock drain and wetland cells at the end of the 2013 Spring/Summer Pilot Test Period. No additional matrix sampling is identified in the Work Plan or associated SAP.

ATTACHMENT A

Rock Drain Baseline Matrix Sampling Photo Log

Rock Drain **Sampling Locations** • View looking north toward the inlet. • Sample locations spaced approximately 4.5 feet from the west and east walls and from eachother. • Sample locations spaced approximately 7.5 feet from the north and south walls and from eachother.	
Rock Drain **Sampling Locations** • Samples were collected approximately 6 inches below the rock surface.	

Inlet to Rock Drain ↓



To Wetland Cell ↓

ATTACHMENT B

Wetland Baseline Matrix Sampling Photo Log

Wetland Cell **Sampling Locations** • View looking south toward the outlet. • Sample locations spaced approximately 3.25 feet from the west and east walls and from eachother. • Sample locations spaced approximately 14 feet from the north and south walls and from eachother.	
Wetland Cell **Sampling Locations** • Samples collected approximately 6 inches below the bottom of the mulch layer.	

Inlet to Wetland Cell ↓

		
		
		
W1d – ice prevented sampling	W2d – ice prevented sampling	W3d – ice prevented sampling

Outlet ↓